

NetProfit

JIM HIGGINS

How To Use The **Internet** To Improve Your Business



AN INTERNET GUIDE FOR EVERY NEW ZEALAND COMPANY, BIG OR SMALL

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NetProfit

Jim Higgins has been a leading figure in New Zealand's computer and telecommunications industries for the past twenty eight years, particularly in local and central government. He is a fellow and past president of the New Zealand Computer Society, and in 1996 was elected chairman of the Internet Society of New Zealand (ISOCNZ), the body which controls the Internet domain space in New Zealand.

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To my grandson Sam – it's his tomorrow we're working on

PENGUIN

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CHAPTER 1

Expectations

THE FINAL DECISION to write this book came after about the twentieth request at one of my 'Internet for Business' seminars, for the name of a good practical book on doing business on the Internet. Clearly the texts which were available at the time, while they provided good coverage on what the Internet was, what it was all about and how to 'surf' the Web, did not cover the business side from a 'how to do it' point of view.

This book, however, is for people in business! The title, *Net Profit*, means just that: how you can use the Internet to increase the profits for your business. There are also clear benefits in following the processes and procedures laid out in subsequent chapters for even those in previously 'non-business' sectors, such as government and education. It is a lot easier to make sure that your enterprise is efficient and effective if you look at what you are doing and your use of resources such as the Internet from the point of view of someone running a business.

The book will be equally useful to large corporates as it will to small businesses. The Internet might be looked at as the 'great business leveller'. It is just as easy for the two-person company of Little Widgets Limited to run an international business on the Internet as it is for a giant American corporation. In fact it may well be easier. It is certainly much easier in a small organisation to do the business planning and get the decision-making processes right than it is in most very large organisations. This may well be why they of those large organisations have not done it well to date and the reason that many are disillusioned because their foray into the realm of business Internet has been less than successful. It is interesting that the Web has been so seductive to so many that it is the only part of the Internet they recognise as a business tool - hopefully this book will help them change that!

Many small businesses, especially those who are still going through those vulnerable first two years, have extremely limited budgets - both in time and money - and have to make some very hard decisions regarding business promotion and product marketing. It is in these two

areas that the Internet can be extremely valuable. It is not necessary to invest huge sums of money to implement a successful Internet business strategy. The investment risk is low and the potential for business benefit high. The main thing is to do it right from the outset.

Government on the Net

A surprising number of governmental organisations in New Zealand have a Web presence. If one looks in New Zealand Government Online at <http://www.govt.nz/> the number of government entities with URLs (Uniform Resource Locators) is quite remarkable. This is a commendable effort and no doubt a visible example of the reforms which have recently taken place in the government sector. Many of those pages are, however, solely for information dissemination – just to be there, as it were – and are not the result of a thorough analysis of the direct benefits the use of Internet technology can bring their organisation.

The failure of the Government Within Reach project to achieve its goals is a good example of how the real power of the Internet is often misunderstood. Government Within Reach was a brilliantly conceived project to bring all government information, both local and central, into a single point – a ‘one-stop shop’ for anything you wanted to know about government. Information about every central government entity and every local body, from how to claim a sickness benefit to how high my neighbour’s fence is allowed to be, would be there, up to date and easy to access.

What happened? At the end of several years of effort the only visible signs of success are that the government ‘blue’ pages have been reinstated at the front of the telephone book and are also available on the Internet. The latter is more an achievement of technology than it is a practical use, as most people can access the phone book more quickly (and a lot more cheaply) than they can gain access to the blue pages through their Internet service provider.

Why didn’t it work? I believe that the developers failed to recognise the ubiquitousness of the Internet and the speed with which it is penetrating homes and businesses. No doubt the cry that I often hear of ‘there aren’t all that many people on the Internet’ echoed in the halls of the Government Within Reach project. Another problem was a determination to get all Ministries and Departments signed up to the project right at the outset. This was never going to happen for a whole lot of reasons to do with politics and positioning. John Gall in his book *Systemantics*

defined a principle which fits extremely well here. He said, 'It is impossible to build, from scratch, a large system which works. You can, however, build a very small system which works and then gradually expand it into a very large system which works.' Had the project managers first persuaded one small but critical entity to provide access to its information over the Internet - by whatever technology was best suited to the task, Web or email - then that entity could have been used as the bait to lure ever larger organisations to participate in the project.

As you read through this book you will come across many exhortations to spend time in planning for your Internet project. This planning work cannot be overdone. The important parts are understanding what it is that you expect to get from your Internet business project, who are your customers and what are the products you are going to 'sell' them. Had the proponents of Government Within Reach understood the power of the Net from the outset and established the goals and objectives of the project from an Internet point of view, then this desperately needed project might be successfully up and running today.

The nature of the beast

The Internet is the largest machine the world has ever seen. Even today, when the Net might be said to be in its infancy, the one hundred million or so people on their one hundred million connected computers accessing the twelve million servers scattered around the world comprise a formidable resource. Some years ago when Sun Microsystems coined their company motto 'The Network is the Computer', few understood what they were talking about. It was, in fact, an extremely visionary statement and its focus has placed Sun in a position today where it is one of only a couple of leading companies in the Internet hardware area. It is this same understanding of the directions technology is taking and how these can be harnessed for your business that is the purpose of this book. In gaining this vision one must understand the Internet not as something from which to get some interesting pictures or useful information, but as a powerful tool for extending your business.

The Internet might be seen as the great geography destroyer. As the saying goes, 'There is no top to the Internet.' It is necessary, if you really want to understand the nature of the Net, to first throw away all concepts of normal geography. On the Internet, the person on the computer in the office next door to you is just as close as the person

on a computer in their back bedroom in a house in Anchorage, Alaska, or a plumber in his office in Capetown, South Africa. Normal considerations of where things are physically are no longer relevant. This means that decisions about where to locate information can now be made on the purely commercial basis of cost, service provision, vendor integrity and support.

What Internet business is all about

As with any other business tool, an essential element for success is understanding the nature of the tool itself. Certainly with the Internet there are a variety of tools available, each suited to a particular business problem or opportunity. Regretfully many businesses have chosen to use just one of the tools – generally the World Wide Web – rather than selecting the tools for a particular purpose or to address a particular issue. This situation generally arises as a result of skipping the first important steps in the process, the business planning. Those organisations which have chosen the quick-and-easy approach and have just put up a Web page will never achieve their business objectives, primarily because they didn't have any in the first place.

Rarely, if ever, would a successful business invest in a substantial item of plant or property before first carrying out extensive research into the suitability of the purchase for the business purpose, its impact on the organisation, capitalisation, cash flow, market share, etc. These decisions are not made without a carefully prepared business plan and the impact on the bottom line being totally understood. Investment in Internet marketing is no different. Careful and thorough planning is required before moving into a marketing and business operation which has the ability to severely impact on the overall business.

I often speak to businesses who have, in their own words, just put up a Web page as a learning experience, to get used to the technology and to see how they might use it in their business. While this approach may seem to be supported by some logic, it is also fraught with risk.

Firstly, a Web page is as much a front door to your business as is the receptionist who greets visitors and answers the corporate telephone. Visitors to your Web site will use it to formulate an opinion of the way you do business, the quality of the service you provide, your attitude to your customers, the usefulness of your products and a whole bunch of other assumptions which may well have little to do with the realities of your business. Putting up a Web site without thinking about the



impact you want to have on your visitors, as an 'experiment', could well be akin to employing a refugee with very little understanding of English as your receptionist/telephonist. The message is 'do it once and do it right' - that way you will at least have a chance at success. It might take a little more time but there is never a great urgency to do something really badly.

Secondly, unless you have some expected outcomes clear in your mind it is very difficult to gain any useful information from such an experiment. While it is possible to obtain excellent statistical information from your Web host, something we will examine in greater detail in later chapters, that information is only useful if you have set out to achieve a specific objective and are able to relate the visitor information to the approach you have taken to achieve that objective.

Thirdly, such trials tend to engender only short-term interest and

You can use the Internet to increase the profits of your business.

commitment on the part of staff. The project starts out having created in the minds of the staff the idea that this is not the real thing and it doesn't really matter too much how it turns out – it's just a learning experience. This is not the stuff of commitment. Once the novelty wears off, work on maintaining the site will inevitably slide to a lower priority. This will result in a degradation in the accuracy and currency of the information on the site and that condition will then start to become a threat to your business. You begin to send a set of clear messages to your customers that a) you are not serious about this technology, b) you have little concern that you have been supplying them with poor-quality information, and c) that this is how you run your whole business.

Is it worth it? What have you saved? What have you gained? More to the point, what have you lost? The answers are fairly obvious. You still have to go back and do the planning donkey-work anyway. Why not do it in the first place and make a good job of it right from the start?

A stable technology

The next chapter deals with some history of the Internet. Why do these books always waste a lot of time going over ancient history, you might well ask. It is a fair question and it has a fair answer. The reason for spending time on historical background is that no prudent business manager would dream of investing time and money into a business direction which appeared to be based on an untried and unstable technology. The history chapter allows you to understand the origins of the Internet, the reasons for its rapid growth and a little of the underlying technologies which provide the telecommunications platform on which the Internet runs. This part of the book does get a bit technical, but you will find that it is explained in layman's terms and isn't too onerous to understand.

Confidence that the medium is stable is important and Chapter 3 discusses how the Internet is structured and who runs it. I once attended a seminar on doing business on the Internet, given to a room full of small-business owners. The objective was to get these people to pay to have Web pages advertising their businesses, created and hosted by the speaker's company. The speaker came out and with much drama and enthusiasm described to us how the Internet was exploding and expanding at an enormous rate 'absolutely out of control' he said. You could hear the rustle of eighty or so chequebooks being put firmly back into pockets. 'There is no way I'm putting money into something out

of control' you could see them thinking. Chapter 3 helps you to understand why the Internet is actually quite *under* control – albeit a type of 'control' that is considerably different than that which we have been used to in the past.

Using this book

Net Profit is a 'how to' book. It provides you with the basic building blocks and the understanding of how to use Internet technologies to advance your business goals. You could just follow the instructions and put together your own Internet business strategy, but I would recommend that you get assistance from outside your organisation for a number of reasons.

Firstly, everyone has their own personal model of the world that they use to understand why things happen. Even businesses and other organisations have this 'world model' we usually call a paradigm. The paradigm of the average business tells the organisation how its customers think of it and how they react in any given circumstance. The paradigm explains to the business what happens when things go wrong and how the business should react to control the situation. When some completely new situation arises, the business will not have a paradigm to fit the new events and so it will hunt around for an existing one and try to bend it to shape. Generally the lack of fit results in a rejection of the new situation, even though it might represent a major business opportunity. This 'paradigm paralysis' can blind an organisation at the very time that it needs to grasp opportunity and move ahead. The object of getting assistance from outside is to help break the paradigm and open up the business and the individuals who form it to new ideas and approaches.

Secondly, there are a number of techniques and approaches available to those contemplating the use of Internet technologies for business promotion. The areas in which these techniques can be used to best effect are not always obvious to someone who has limited experience of the technology itself and therefore the final solution will not necessarily be the best available.

Notwithstanding the benefits that might be gained from outside assistance, the supporting background information laid out in subsequent chapters together with the pragmatic approach to creating the business strategy will enable the reader to do the research and business planning necessary for a successful Internet business project.

CHAPTER 2

This Old Gentleman, the Internet

In the beginning

Like many things which benefit a peaceful world, the Internet has its background in concerns about war. Back in the early 1970s in the heat of the cold war, the US Department of Defence was concerned that the communications network which connected their various defence research establishments was vulnerable to a nuclear strike as it employed a ring topology – the parts of the network were connected serially, each relying on the other to be there for the whole to work. In addition, it was realised that by improving electronic communications it would be possible to greatly improve the speed at which various projects were progressed.

The Department was therefore looking for a network that could not only be easily and cheaply expanded, but also one that would be ‘self-healing’, that is, it would be able to successfully and automatically re-route transmissions around a damaged part of the network.

Open systems

As we say about everything under the sun, computer networks are not a new thing. Computers have been talking to each other from a distance for about forty years now. Admittedly in the early days achieving this communication was not an easy thing: the computers needed to be the same make and often the same model. They needed to be running the same software at each end and even then it didn’t always work.

This situation quite suited the computer manufacturers of those days who felt that you needed something to lock your customers into your product (quality and service weren’t something the computer vendors regarded as an attractive marketing proposition then). The invention of the UNIX operating system at Bell Laboratories in 1971 began to change all that. It was really the first time that an operating system (the program which runs the heart of every computer) had been developed with the

purpose of running on a whole range of computers and also the first time that such a piece of software had been made freely available rather than being jealously guarded by its inventor for sale with its own computer.

UNIX in those days was an outstanding system for networking and its existence generated a whole new approach, known as 'open systems', in which computer vendors tried actively to connect their machines to each other. In New Zealand back in 1991 a landmark event occurred when a newly formed organisation calling itself OSINZ (Open Systems Interconnect New Zealand) held its first conference at the Waipuna Lodge in Auckland. A positive frenzy of connectivity occurred, with the vendors vying with each other to see who could communicate with the most other machines.

This was heady stuff. After years of secrecy and closed doors, here were these mortal enemies freely and publicly exchanging information about how their products worked, their deepest secrets! Well, the world didn't end and nobody died. The marketing guys choked a bit on it but the techos were in their element.

Things were different after the Waipuna conference and the open connectivity thing moved with such speed that it became quite commonplace – even expected – for computers of different makes to connect to each other, to the degree that the OSINZ held only one other conference by which time it was all a bit boring so they didn't bother doing it again.

To the business manager, open systems was a tremendous advance – although they didn't know it then. The new approach opened the way for a whole range of specialist terminal systems such as barcode readers, point-of-sale terminals, EFTPOS terminals and the like to connect to a wide variety of back-office computers and to computers in warehouses and banks. Finally the customer had choice and wasn't locked into a single computer manufacturer. If the quality and service wasn't there – they could change!

Infrastructure

A lovely word, infrastructure, it sort of rolls off the tongue, but what does it mean? Infrastructure is the term given to the complex network of copper wires, fibre optic cable, microwave circuits and even satellite transmissions which make up the world's telecommunications system. The telecommunications infrastructure is owned in most countries by

the large telecommunications companies but increasingly in New Zealand by smaller companies and organisations who happen to have some spare capacity and are happy to offer this on the open market. This situation has been assisted by the fact that New Zealand is the only country in the world with a truly deregulated telecommunications industry.

The average business with some degree of electronic communication, perhaps to their own branches, business partners, warehouses, or to a wholesaler, very definitely to all of the banks through the EFTPOS system and now, increasingly through Internet connectivity, will be, perhaps unknowingly, a sophisticated user of the telecommunications infrastructure.

The technology

Computers communicate with each other in a type of code. There are, even today, quite a variety of these codes, or 'protocols' as they are called, and the computers at each end of any given communication must be using the same protocol. Protocols equate to languages for humans. If person A talks to person B in Swahili, person B must be familiar with that language (their 'computer' must have a Swahili translator). Many humans understand more than one language and, similarly, most computers are able to interpret a variety of protocols. When a computer can only interpret a single protocol, or that protocol is used only by one manufacturer, it is known as 'proprietary'. Proprietary protocols are not regarded these days as good things. The buyer should be wary of computer offerings which run only on proprietary protocols.

Fortunately for us all proprietary protocols are fast disappearing, and the 'proprietary protocol killer', if one can call it that, is a protocol called TCP/IP (it stands for Transaction Control Protocol/Internet Protocol, if you really have to know). TCP/IP, once ignored by standards makers (it wasn't included in the original open systems standard), has taken the world by storm, really because it is the protocol on which the Internet runs. The way things are going TCP/IP (or its children) is set to be the only telecommunications protocol used by the computers of the future. How long will it take? Hard to predict, but within ten years it is likely that the whole world will have turned to the Internet protocol for its direct level (computer to computer) telecommunications.

At the level at which bulk telecommunications are carried there are a number of other protocols which are used to obtain high-speed data

transmissions. If TCP/IP were containers (the information enclosed within) then high-speed protocols such as ATM (Asynchronous Transfer Mode) are the container ships which carry them from port to port around New Zealand. For the longer haul the sea might be SDH (Synchronous Digital Hierarchy) to carry the ships between countries. Protocols, then, sometimes sit upon each other (like the proverbial fleas) for the purposes of achieving greater bandwidth.

Bandwidth

The term 'bandwidth' confuses a lot of people. It always gets confused with radio and conjures up this image of radio waves and the like. Bandwidth in essence is quite simple. It is how much information can travel over a copper or fibre optic cable - or even over a radio frequency - in a given time. Bandwidth, when quoted by people in the land-based telecommunications industry (transmission by cables) generally is in data bits per second (it takes approximately ten bits to make a character). As though we are not already confused enough, radio frequency engineers quote data transmission rates in megahertz and one is constantly translating one into the other. If you multiply the megahertz by .844 you will get the equivalent in bits per second (bps). Don't forget these are bits and you must divide the bps by ten to get characters. Complicated, isn't it? Fortunately such technical worries rarely need to be grappled with by the business manager as your computer vendor will have a good handle on your bandwidth requirements.

Broadband

Most of the telecommunication we have used to date has fallen into the category known as narrowband - up to about two million bits per second (two megabits). The next range is medium band (sometimes called wideband) - up to about forty megabits per second, and over this is broadband - however fast it gets from there. Up till now most retail-oriented transactions for example have been very small credit card transactions only a few hundred bits in length and even accessing stock and warehouse files requires very few data bits per second to satisfy the user's needs. The Internet, or more specifically the World Wide Web, changed all that. Increasingly, driven mainly by competition for the same customers and a desire to have 'the best Web site in our industry', Web sites have become infinitely more complex in their graphics and now in their use of animation to sell their products. To

get some idea of where this is going, take a look at the Joe Boxer site at <http://www.joeboxer.com> and see how the Joe Boxer company is using graphics and animation to sell its product (underpants, in this case).

The use of complex graphics and animation in this fashion requires substantial amounts of data to be transmitted around the Internet. It is not always possible to get the needed capacity on the web of telecommunication lines which connect you to a remote site. The journey may take you through hundreds of switching computers, and dozens of telephone networks, all of which will have different throughput capacities (bandwidth) and loadings at any given time. No matter that you may have leased a two-megabit line directly to the nearest Internet backbone node, your system will download Web pages at the speed of the slowest line on the journey.

Clearly, at this stage of the Internet's development it will not be possible for any sudden solution to the bandwidth problem. Improvement in capacities in various segments of the world's telephone infrastructure are not keeping up with the skyrocketing growth of the Internet, both in the number of people connected and the number of Web pages being made available to those users.

Page-loading techniques

Many Web designers are becoming sensitive to the problem and are putting effort into designing their sites for maximum load speed rather than fancy graphics and 'cute' animation effects. Sometimes they miss the point and a glaring example was the introduction of Telecom Xtra's service in mid-1996. The page designers had excelled themselves and when you selected the Xtra URL (<http://www.xtra.co.nz>) the screen went blank and this wonderful three-dimensional picture of the Xtra online village began to creep slowly down the page. It had some benefit as it gave you a break to go and make a cup of coffee. Provided you weren't too quick, it might be done by the time you got back. Within a couple of days the Xtra village homepage had been replaced by a set of fast-loading buttons (you still had the option of getting the big graphic if you wanted it).

The lesson here is that firstly the Internet infrastructure still does not have the capacity to load this type of stuff at the rate that will satisfy the average user, and secondly that it is important to use Web designers who design for the customer rather than to satisfy their own creative needs.

There are a number of techniques which speed up downloading of pages and one of these is tiling. Using the tiling approach a page background (sometimes known as 'wallpaper') is constructed of a repeating design in the fashion of a series of wall tiles. Since all the tiles are the same, the system will send one tile from the server to the user's computer (the 'client') with an instruction for the client to repeat the tile until the screen is covered. Because this uses high-speed processor power in the client machine the screen is filled many times faster than it would by downloading the whole screenful of graphics in one hit. It is also possible to 'fuzz' the edges of tiles so that it is almost impossible to see them on the screen and it is in this fashion that the textured backgrounds are built. A skilled designer can carefully fuzz the edges of even quite complex tiles and get the effect of, say, a large school of small fish or the pebble bottom of a stream.

Other techniques involve loading text before graphics so that the user is beginning to read the information almost immediately, and loading graphics as a series of ever-increasing detail so that the picture is recognisable well before it is finished (a sort of 'filling in the dots' approach).

Many sites, rather than loading large, full-page graphics, are providing 'thumbnails' - small postage-sized pictures - which can be selected by the reader to be blown up to full screen size if required.

We don't have the bandwidth yet for the really fancy stuff but that doesn't mean that your retail Web site needs to be boring.

CHAPTER 3

The Internet – Out of Control?

A stable technology

Any prudent business manager deciding to invest in business technology will want a good level of comfort that the technology itself is stable and mature. To say that the Internet is mature, at least in terms of its potential, is probably an exaggeration. On the other hand it has been around for 25 years and has achieved the maturity of a technology which is well understood and in which the problems are well documented and are being addressed. The very expansion of the Net has created problems with the core – the place which knows where everything is – but these problems are under control and measures are gradually being introduced to deal with them.

The business manager can, however, embark on the implementation of his or her Internet business strategy secure in the knowledge that every one of the hundred million or so Internet users will be able to access information from their new Web site, any emailed purchase order sent will have an excellent chance of reaching its destination, and those electronic newsletters will get out to the customers in good time.

A new paradigm of organisation

It is probably more than fair to say that today every business structure, every business arrangement between two or more parties, every sale of goods or services sits on a sound platform of contracts, formal agreements, statutes, regulations and the like, all of which have a legal basis and can be used, in court if necessary, to ensure that each party carries out their responsibilities to the particular enterprise or business deal.

Not on the Internet. The Internet is based on an entirely different business paradigm, one of mutual trust and agreement to accept certain responsibilities. This agreement, perhaps the closest thing to a business contract that the Internet has, is not even with the individual or

individuals who will be the business partners. In a way the agreement is with the whole burgeoning Internet community, to ensure that every communication will be passed freely through the participant's attached computer without constraint. This free flow of messages and transactions through the millions of computers which make up the Internet is the very fabric which is the Internet itself. Any action which threatens to block the flow can be the 'thin end of the wedge' which has the potential to destroy the Internet.

It was for this reason that the Internet Society of New Zealand involved themselves in the dispute between two New Zealand Internet service providers (ISPs), Telecom Xtra and Voyager, late in 1996. Voyager had used the 'finger' command to obtain a list of Xtra's customers and used this list to send a message to those customers. By themselves these actions did not threaten the Net - finger is an old device which has been used for many years to assist in finding resources and people on the Internet. The sending of unsolicited mass messages to Internet users is known as 'spamming' after a Monty Python television programme, one episode of which had the characters running around endlessly using the word 'spam' in every sentence they spoke. Spamming, while regarded as 'bad form' by Internet users, again does not threaten the fabric of the Net.

Xtra, not unreasonably, took a dim view of Voyager's activities and proceeded to block all transmissions bearing Voyager source addresses from entering their server in an attempt to prevent the further use of finger and a repeat of the spamming. This put the dispute into a totally different category and threatened the very fabric of the Internet. The Internet Society attempted to mediate the dispute but was unable to persuade Xtra to lift the block. Fortunately the Internet itself solved the problem.

In designing the Internet to be self-healing, the creators of this amazing system provided a feature called 'remailing'. A remailer receives messages from a particular source and changes their originating addresses to its own. The messages are then placed back into the Internet and continue to their destination. In the case in question Voyager remailed all of their users' transactions through Ozemail, their parent company in Australia, and the transmissions flowed freely into Xtra's servers. Seeing the futility of the block, Xtra subsequently lifted it and life continued.

The episode left us with some salutary lessons. Firstly, that many people involved in running business operations connected to the

Internet have little understanding of the nature of the Net itself and their responsibilities towards keeping the whole thing up and running. Secondly, when commercial issues conflict with the Internet this lack of knowledge will mean that the participants, in the main, are likely to put commercial gain before the protection of the Net itself. Thirdly, the Net is turning out to be an organism with some remarkable inbuilt features which are designed to ensure its own survival. The self-healing features built into the Internet in those very early days are proving to be a major asset as the Net moves into the 'hard ball' world of commerce.

Finally, it is clear that the commercial pressures under which the Internet is coming might well be a threat to its existence. These pressures may well cause the next level of change in the structure of the Internet. Having achieved what might be described as a universal computer-driven communications system, on the basis of mutual trust and co-operation - the only way, in fact, that it could have been built - we now need to put in place those structures and procedures which will ensure that the Internet can survive the ministrations of those who do not totally subscribe to the spirit which built the Net in the first place. These structures and procedures may have to go back as deeply into the Internet organisation as the Internet Society itself.

The Internet Society

The Internet Society, or ISOC as it is more commonly known, is the ultimate authority for final decisions as to the future directions of the Net. ISOC is a voluntary organisation and anyone can become a member. The Society does its work via a series of committees and boards which are, on the whole, appointed from the ISOC membership. In many ways ISOC is a pragmatic blend of democracy and dictatorship - just enough of each to keep the thing running.

The best explanation of what it does and how it works is embodied in the description it publishes of itself:

The Internet Society will not operate the Internet. Internet operation will continue to be a collaborative activity which the Society will seek to facilitate. The Society will provide assistance and support to groups and organisations involved in the use, operation and evolution of the Internet. It will provide support for forums in which technical and operational questions can be discussed and provide mechanisms through which the interested parties can be informed

and educated about the Internet, its function, use, operation and the interests of its constituents.

Internet Architecture Board

The Internet Architecture Board (IAB) is a group of 'invited volunteers' who meet regularly to discuss and coordinate the more technical aspects of the Internet. It has been described as a 'council of elders' and generally represents the cream of Internet technologists from around the world. The IAB has coordinated research and development of the TCP/IP telecommunications protocol on which the Internet runs and invests much effort on looking at the future of TCP/IP and the new versions which are released from time to time.

The IAB also devotes time to Internet addressing. Each computer attached to the Internet has a unique 32 bit address. The IAB doesn't actually assign the individual addresses but it does concern itself with making rules which govern how the addresses are assigned.

The IAB, then, is really about standards on the Internet. It accepts, debates and promulgates new standards for the Internet internationally.

Internet Engineering Task Force

The IETF could be described as a giant committee which anyone can join – the ultimate in democracy! The IETF concerns itself with developing standards for Internet protocols and architecture. Because the IETF is very large the actual work is carried out by working groups. Again the working groups can be attended by anyone interested enough in the subject, though if you do so you are expected to contribute. The working groups have many different functions, ranging from producing documentation to deciding how networks should co-operate when problems occur, to changing the meaning of the data bits in a packet of information. The outcome of the working groups will be a report which will have one of three fates:

- a) The report may simply be documentation on a problem or situation, in which case it will be sent around the world – on the Net, of course, for the information of Net users.
- b) It might be regarded as a good idea which is taken up and followed by everybody, or
- c) It could be a new standard, in which case it is sent to the IAB to be promulgated as such.

Internet Assigned Numbers Authority

The Internet Assigned Numbers Authority (IANA) is responsible for recording the protocol identifiers of the networks attached to the Internet, providing a standard way for systems to refer to network sources. It was IANA which provided the authority for the New Zealand Internet Society to allocate domain names.

Internet Network Information Centre

The most important function of the Internet Network Information Centre (INTERNIC) is as the registrar of domains and network numbers for the whole of the Internet. As well as this function, the INTERNIC also keeps a huge amount of information about the Internet at large and the operation and activities of the various bodies described above. The INTERNIC is the place to visit if you want to find out what's going on.

The Internet in New Zealand

The Internet arrived in New Zealand in 1988 when John Houlker of Waikato University organised a link through NASA's Pacific connection. Back in those days NASA paid for most, if not all, of the costs of distributing the Internet across the Pacific. This largesse began to dry up around 1992 and the Pacific countries have gradually had to shoulder the financial load themselves. This came as a bit of a shock to many but John Houlker and his associates had seen the writing on the wall and had begun to introduce charging systems so that New Zealand was well prepared when the axe finally fell. One of the fascinating things about the US government's sponsorship of the Internet in those early days was that many people were under the firm impression that the Net was a free service, that nobody paid for it and it was their right to have free access. Some pockets of this feeling still exist today but the pragmatics of life in the real world have flushed out most of them.

CityNet

Use of the Internet in New Zealand grew steadily, but not spectacularly, mostly in the universities and research establishments. One of the very first of the 'public' Internet service providers was Wellington City Council, where a visionary called Richard Naylor started CityNet. Richard rescued an old Digital Equipment Corporation minicomputer from being taken to the dump and set it up as an Internet server.

CityNet offered free Internet connectivity to anyone who wanted it - and many really did. The numbers grew steadily to reach a peak of 3500. Many of CityNet's users were avid Internet 'junkies' and like their heaviest user - Roger McKenzie, connected from his farmhouse in North Auckland - would be on the system right into the small hours. In the latter years records would show that at no time of the day or night was there not someone connected to CityNet. CityNet finally closed down early in 1996. Its job was done. It had seeded the growth of public use of the Internet in New Zealand and that task had been shouldered by the rapidly growing horde of Internet service providers now springing up in every centre of the country. Richard Naylor, no longer having to spend his days scratching about in the City's computer junk room for some more memory to keep the server going, was then able to move on to his next visionary project, creating New Zealand's first privately operated broadband network.

NZGate

Waikato University had established the primary gateway for the Internet in Hamilton and continued to operate this up until early 1996. The Internet backbone had been operated by the Tuia Society, a group comprising the universities, Crown research institutes and the National Library, set up in July 1993 to operate New Zealand's National Research and Educational Institutes Network. Their operation of the backbone had, back in 1993, been accepted as a normal part of the research job and it was with some surprise and dismay that by late 1994 they found themselves running this seemingly out of control monster which was overloading their network with commercial Internet traffic. About the same time the Waikato University administrators discovered the substantial resource of people and money which was being poured into keeping the Internet up and running in New Zealand. Something had to give and in February 1995 the Tuia Society sponsored a public meeting to set up the Internet Society of New Zealand. An interim committee was established to create the structure of the Society and to come back twelve months later to hold its first AGM and election of a council.

ISOCNZ

The new society looked at a number of options for its structure, including becoming a chapter of ISOC. The costs of doing this, in terms of the very high levies imposed by ISOC on its chapter members, was

prohibitive for ISOCNZ so the group decided to 'go it alone' and set up as an individual Internet society. Relationships with ISOC were rather frosty in the beginning, with ISOCNZ representatives at the 1995 ISOC conference vociferous in their demand that ISOC review chapter status requirements. By 1996 however, a number of other countries had begun to follow New Zealand's lead and our model of a freestanding society was beginning to appear elsewhere.

By mid-1995 the pressure on Waikato University's Computer Science Department to divest themselves of the financial burden of running the Internet in New Zealand became even heavier and culminated in two major changes.

New Zealand Internet Exchange

Waikato had been running the New Zealand gateway for some years as a virtual monopoly, paying the international carriers for Pacific traffic and recovering this from New Zealand Internet service providers and the Tuia Society members. The float in the bank account was beginning to assume alarming proportions so Waikato decided that the time had come to apply New Zealand's current free market philosophies to the Internet. In January 1996 Waikato began to switch New Zealand Internet traffic across from NZGate to the New Zealand Internet Exchange. NZIX, as it is known, is a free market gateway where New Zealand carriers negotiate Internet feeds directly with international carriers, making their own arrangements regarding bandwidth and costs. Physically the NZIX is still located in Waikato University, who look after the well-being of the switch, but there their responsibility ends.

Domain registration

Since the Internet arrived in New Zealand, Waikato University had been maintaining the Domain Name System (DNS). Initially this was far from an onerous task as relatively few requests were received for new names. Once the commercial world got hold of the Internet, however, things changed rapidly. By late 1995 the University found that it was employing two people full time on domain name registration. Inevitably the University administrators began to ask why this was happening and the Computer Science Department started to look seriously for a successor.

The fledgling Internet Society of New Zealand agreed that it would take over responsibility for the Domain Name System as from 1 July 1996 and the appropriate authority to do so was duly obtained from IANA.

Clearly the system could not be operated without cashflow and so a system of charging for domain names was instituted in order to pay for the service. This move generated much outrage from the Internet community, at least those who were still clinging to 'the Internet is free' theory. Fortunately for ISOCNZ, the United States had instituted fees for registration and maintenance of domain names some months earlier (and at a higher price) so the New Zealand move was quite defensible.

Domain name charging has at least removed the last vestiges of belief in the minds of those who thought that there was no charge to use the Internet. In the event, the physical DNS registration process remained with Waikato University, their costs paid for out of the new fees. The actual process of domain name allocation is described in Chapter 18.

Pressures on the Internet

For those who take some comfort in definitions, John S Quarterman in his book *The Matrix: Computer Networks and Conferencing Systems* describes the Internet as 'an internetwork of many networks all running the TCP/IP protocol suite ... connected through gateways and sharing common name and address space.' This is probably near enough for most people although, in fact, there are still a number of networks connected to – or at least accessible through – the Internet. You will occasionally hear of FidoNet and BITNET, other networks which are reachable through the Internet and which do not use the TCP/IP protocol.

In general, however, the Internet uses a system of 'node' computers scattered around the world, which have information about where things are. Not all of them have all of the information, so there is a fair bit of passing of information around as to where different servers are located. There exists a 'central core' of computers which basically know where everything is and there is some concern that with the unprecedented growth of the Net the load on the core is becoming too great.

There is a constant flow of addressing information passing between the nodes of the Internet to keep everyone updated as to the locations of new servers and new addressing (see Chapter 4). Occasionally, however, information storms arise on the Internet as these computers unleash a torrent of information which sweeps around the Net as a hurricane might sweep around the globe. These information storms last only a few minutes or even seconds but they are a phenomenon which no one has been able to explain.

Fortunately for the average Internet user, the mechanics of the connectivity and the switching never become of great concern, materialising only as an occasional slowing down of the flow of information to their screens.

CHAPTER 4

Internet Structure

THIS CHAPTER DESCRIBES how information is arranged on the Internet - both what you might call the 'old' Internet and the 'new' Net - the World Wide Web. While the old Net facilities are still around, they are shrinking rapidly as most information services move across to the World Wide Web. There are however valuable information sources still based on Gopher, for example, and the business manager wanting to make the most of the Internet to enhance his or her business needs to know at least that these facilities exist and how to make use of them.

This chapter will cover, then, as many of the Internet tools as are in common use, including Mail, News and the Web. It will also cover how to get connected and Web page hosting.

Client server

One of the expressions you will come across repeatedly in your journeys through the Internet is 'client server'. Often you will hear the term in its separate parts - someone will discuss a particular 'server' or talk about a 'Gopher client' or a 'client program'. Client server refers to a computing technique which shares computing load between two or more computers. It is not specifically an Internet technology and is commonly found in a range of other areas.

The original approach to computing, mainly because of the high cost, size and operational difficulty of mainframe computers, was to have a large central computer with communication lines running out to 'dumb' terminals. These devices were so named because they had little built-in intelligence and could do nothing unless attached to the central computer. All computing work was done, then, by the central machine.

When personal computers came on the scene it became possible, because of the lower cost, to replace the dumb terminals with powerful microcomputers (these days more powerful than the original mainframes) and to do a lot of the actual computing work at the desks of the users. There was still a need however to provide access to centralised databases and this was arranged by having a relatively large and

powerful central computer which contained the commonly used information. This central machine is known as a 'server' because it is there to 'serve up' information to its users who are its 'clients'. The client machines have their own software on board (generally originally loaded into memory from the server) which they use to process and display the information that they have downloaded from the server.

The Internet is a giant 'client server' system where a multitude of computers, many millions in fact, supply information to many tens of millions of clients scattered in almost every country in the world.

The old Internet

As I mentioned in previous chapters, the Internet has been around for a long time (if you can call 25 years a long time) and at first it was slow to develop. However as the number of computers connected to the various networks which made up the Net began to reach a serious level, the difficulty in locating material on those machines increased proportionately. After a while it became clear that some assistance was needed and so the first of the indexing tools came into being.

Gopher

Developed originally at the University of Minnesota as a distributed campus information system, Gopher was adapted for the wider Internet and was the Net's first shot at trying to organise the information that was beginning to swamp it.

Basically Gopher is a cataloguing approach to Internet databases. It provides lists of resources held on various servers around the world. Unlike a normal library catalogue however, it does not categorise information to any particular standard. The owners of each Gopher take their best shot at thinking up a meaningful naming system and off they go.

It isn't all that bad and after a bit of experience you can navigate around Gopher servers quite well and usually figure out the approach the owner has taken. Also there are other tools to help, as we shall discuss below. An advantage Gopher has is that having found a reference Gopher will take you straight to it - you don't have to worry about whether it is an FTP site or a TelNet site, etc. Gopher servers also provide pointers to each other. Once you have found the first one you can get to the rest by following the pointers. The first thing you see, having made contact with a server, is a menu of the resources available

on that Gopher. When you select an item you are likely to get a second level of finer detail, possibly even a third depending on the complexity of the information held. Eventually, however, your menu selection will give you the file itself. The best way to get the hang of Gopher is to try it. You can get to the Victoria University Gopher through: <gopher://gopher.vuw.ac.nz/>. Once there if you can't find what you want you can move off to one of the other Gopher servers.

Is Gopher a useful tool for business? The answer to that question is 'possibly, for a while'. The number of Gopher servers around the world is shrinking, mainly because most are migrating to Web servers and the message 'Gopher closed - try our Web site at <http://www.....>' is quite a common message these days. However there is still a lot of useful information held on Gopher servers around the world. These servers can be accessed easily through Web browsers, although the Web search engines won't always index Gopher sites so you might still have to go in to 'Gopherspace' to find what you want. Often you will find Web pages where someone has put up a list of Gopher resources on some particular subject, in which case the search engines might pick up the reference - otherwise they won't.

The things you will find on Gopher will mainly be research papers and the like. These could well be useful, depending on the type of business you have. In terms of selling your products or services, Gopher isn't really a lot of use.

File Transfer Protocol

File transfer Protocol (FTP) is one of the original tools created for the Internet way back in the good old days. Its job is simply to copy a file from one computer to another over the Internet. As with many other words and phrases in our language, FTP has taken on the job of being a verb. The phrase 'just FTP it to me' has become an extremely common one when talking to other Internet users.

In its original form on the 'old Internet', FTP is a complex and rather daunting program to use. However of late, when used embedded in the World Wide Web browsers, it is a much simpler animal.

Archie

Although Gopher is a useful tool for getting to things on the Internet, it can still be hard to find things that you don't actually know are there. Archie is the tool to help you do this. Archie searches through indexes of material on the Internet. Where someone has provided a list of files

which are available to anyone to download through the FTP, Archie can search through those lists to present you with the item you are looking for. You can give Archie the specific name of the file or index item you want (if you know it) or you can just ask for any resources it can find containing a particular key word.

Of course Archie's ability to find what you want depends on what the person building the index or creating the file name was thinking when they created them, and to this extent Archie is limited in its ability to help you. If you are not having much success with Archie you can always turn to his friend Veronica.

Veronica

Just to prove that names on the Internet aren't just silly made-up things, you should know that Veronica stands for 'Very Easy Rodent-Oriented Netwide Index to Computerised Archives'. The 'Rodent-Oriented' bit refers of course to Gopher. Veronica does for Gopher information what Archie does for FTP sites. Using key words you can get Veronica to head out into 'Gopherspace' and track down specific resources. Veronica is extremely easy to use, even for the novice, and although you are navigating around the 'old Internet' in plain text format it's hard to get lost. If you know what you want might be in a Gopher server somewhere in the world, Veronica is just the lady to find it!

The constraints applying to Archie also apply to Veronica of course. Your success in finding what you want will hinge greatly on the ability of the index creators.

WAIS

Commonly pronounced 'wayz', WAIS stands for 'Wide Area Information Servers' and works, from the user's point of view, in a similar way to Gopher and Archie and the rest. There are a number of WAIS servers scattered around cyberspace and these provide access to indexes of material held on databases. WAIS allows you to enter a set of key words and, using these, WAIS will wander off in search of anything it can find which matches your request. WAIS indexes normally contain every word in the databases it indexes so that the effect is one of carrying out a word search of all of the database material accessible to WAIS. WAIS does have one good feature and that is that it provides a 'score' for each of the documents in which it finds a match to your search request. This score is based on a system of allocating a value for each time it gets a match on one or more of your search request words. When

it presents the results the best matched document will get a score of 1000 and the others proportionally less, so you are given a good indication of the place you should look first.

Unfortunately WAIS does have some rather tight restrictions. For example you can't use context. It won't let you insist on words in a particular sequence or next to each other. Nor will it allow you to use 'Boolean' operators. For example to ask for documents containing 'aeroplane' but to exclude any containing 'Boeing' or 'airbus'. The other major drawback is that you can't refine your search. In other words, having carried out the first search you realise that you have a lot of 'hits' on your search pattern but you want to search those with another series of words to reduce the number of documents you have to read - you can't do it.

Nevertheless WAIS can be a useful tool for business, to find material for researching products or processes or to find organisations in the same or a supporting line of business.

The tools mentioned above still do have a useful purpose to serve, albeit in a shrinking area of stored information. How long will they continue to be useful is anybody's guess, but it probably won't be too many years before the last Gopher server finally shuts down. From the point of view of business information it may not be even that far away. Much of the information held on the Gopher and WAIS servers and the like is available from other sources on the World Wide Web. These days the Gopher and WAIS servers are falling into the category of 'last resort' if you can't find what you want on the Web.

The World Wide Web

The World Wide Web, perhaps surprisingly, has actually been around in its original form for quite a few years now. The original concept was developed and promulgated widely by Ted Nelson who was developing his 'Xanadu' hypertext system as far back as the late sixties and the early seventies: see <http://www.adkathome.de/barcelona/t15.html>.

Hypertext is a system for the linking of information in three dimensions. If we take an encyclopaedia as an example of a paper-based database, the information is arranged in two dimensions. On the first page we will probably encounter 'aardvark', then turning the page we may well find 'abseiling'. While it is almost conceivable that there is an aardvark out there somewhere who abseils for a hobby, it is reasonable to assume that there is no relationship between the two. As we turn

the pages of the encyclopaedia we find that this lack of context continues. The only relationship between the items of information is the fact that their names progress sequentially through the alphabet.

Let us now remove the binding from the encyclopaedia, tear out the pages and attach each to a length of cotton suspended from the ceiling. We then attach one end of another cotton thread to the page containing 'abseiling' and its other end to 'rope'. From there we go to 'hemp' and then to 'flax' and so forth. We now have our encyclopaedia arranged in three dimensions and can logically and quickly follow a path to the information we really want.

Apple were the first to embody this notion in their Hypercard product and the concept is the basic principle behind the World Wide Web.

The Web was first developed at CERN, the European Laboratory for Particle Physics in Switzerland. In its original form, while being a great advance on programs such as WAIS and the like, it was still comparatively difficult to use. You move around the Web using a 'browser' which allows you to access information and have it displayed on your screen. The early browsers were fairly simplistic and basically only provided access to textual information. The advances in only a few years are little short of amazing. Ed Krol in his book *The Whole Internet* said only four years ago 'at this point, the World Wide Web hasn't been fully exploited, making it seem more like Gopher than it really is'.

Since then the Web has truly exploded. The critical event was the development of the 'Mosaic' browser at the University of Illinois National Centre for Supercomputing Applications in 1993. Mosaic completely revolutionised the whole approach to using the Internet as a source of information. No longer did users of the Net need to know complex strings of instructions or to use complicated searching techniques to find the information they required. In a few minutes you can teach almost any new user, with some basic computer skills, to navigate adequately around the Web and to search for and find the information they require.

The Web browser

The Mosaic browser was freely available for anyone to download and within a remarkably short time it was being used all around the world. At this stage Andreesen (its developer) and his colleagues realised there was a commercial opportunity, left the university and set up their own company, Netscape. Netscape's purpose was to create a better browser,

which they did, and the Netscape browser quickly became an international ad-hoc standard. Netscape didn't have it all their own way. The university also recognised an opportunity when they saw one and began to license Mosaic to a number of other companies. For a while there were a multitude of competitors to Netscape, notably Spry, offered by Compuserve. All of these companies, including Netscape, took a rather innovative marketing approach and that was to give away the browser software at no charge. The idea was to quickly capture such a large portion of the market that when they began to finally charge for some future enhanced version of the software the users would be happy enough to pay the small fee and stay with the product. The jury is still out on whether this approach will be successful in the long term. Its major flaw is that a larger, wealthier organisation can also join the game and probably hold out longer with the no-charge approach than you can. This is currently happening with the battle between Microsoft Internet Explorer and Netscape Navigator.

How do browsers work? Firstly, they use a programming language called Hypertext Markup Language (html). As with most computer languages, html looks quite strange when you see it in its raw form. You can do this on most browsers by selecting the 'view' menu then clicking on 'source'. This will show you the html code for the page you were viewing at the time. Html tells the client computer how to set out the information it is receiving from the server - where to place the pictures and text, what sorts of fonts to use, etc. As computer languages go it is relatively simple to understand and use although the average Internet user need never bother themselves with learning html.

Secondly, browsers handle navigation around the World Wide Web. They store and use the URLs to get a user from one site to another and from one page to another.

The Web site

When a business (or anyone for that matter) creates a database of information on the World Wide Web, they create a 'Web site'. The Web site is situated on a 'host' computer - somewhere in the world - it is almost immaterial where it is physically situated. The information itself is arranged in a series of 'pages' which are connected together by a series of 'hyperlinks' called 'Uniform Resource Locators', or URLs as they are more commonly known. Every page on the Web must be identified by a URL otherwise it is impossible for the Web to take you there and all

pages should carry links to somewhere else so that you can continue your three-dimensional journey through cyberspace.

Because of the three-dimensional nature of URLs it is possible, and often desirable, to create Web sites using someone else's Web pages. For example, if a tertiary educational institution in New Zealand put up a Web site (as all have) with the purpose of attracting overseas students, as well as the specific information about the institution itself, the students would be interested in information about New Zealand and the city in which the institution is located. Such things as local facilities, rents and food prices, distances between the city centre and the institution would all be of great interest to the prospective student. There would be little point in the institution creating and maintaining this information if the city's public relations bureau was already maintaining a Web site with that same information. Most sites are more than happy for other sites to carry their links so the logical thing for the institution is to set up an arrangement with the bureau to carry mutual links between the two. In addition there are a myriad of sites which carry general information about New Zealand and it would be logical for the institution to carry these as well. A good example of how these links can be set up can be found at <http://edtech.unitech.ac.nz/>.

The important thing to realise about the Web is that it has no geography. You can move from a Web site in Wellington to a Web site in Dublin just as easily and quickly as moving from page one of the Wellington site to page two. There are a number of implications in this. It may not be necessary for you to carry all the information your customers might need on your own site. If for example you operate two or three separate but linked businesses you might wish to 'interleave' the information for some customers. A public relations firm might also operate an advertising agency and a graphics house. Some new customers may follow a path which explains a holistic approach to PR for their organisations. With a little clever design work the sets of pages for the three companies can be used as though they were one, leading the viewer back and forth through a logical path while not disturbing the information structure of any of the sites as free-standing entities.

Many businesses will have a requirement to load new pages and to maintain old ones on a continuing basis. Fortunately there are a number of tools which will allow you to do this quickly and easily and the organisation which is hosting your Web pages will set up a system to enable you to do this efficiently.

News groups

That portion of the Internet which carries the newsgroups is known as USENET. The newsgroups were one of the earliest functions to be created on the Internet. They are a continuous discussion session, being held on every subject under the sun (and a lot that aren't), 24 hours a day, seven days a week, 52 weeks of the year. Unfortunately, over the past few years newsgroups have acquired rather a poor reputation due mainly to the fact that they seem to attract some rather strange people who spend most of their time verbally abusing others. Many newsgroups have sprung up, especially in the 'alt' section, which focus on subjects unacceptable to many people and these two factors have combined to form an opinion in the minds of many that the newsgroups are a place to stay away from.

The newsgroups do however provide business opportunities if used carefully and prudently. Firstly they can be an important source of business information. Thousands of the groups deal with legitimate and important subjects – such groups as comp.sys will provide a valuable source of information for businesses working in those particular areas. It is possible, for example, to post a question about a chemical process or a new medication and receive the information back within a couple of hours. New Zealand's geographic location can be particularly valuable here as questions posted at close of business will be examined and answered by the rest of the world while we sleep.

On the other side, that of getting information out to customers, the newsgroups can be of assistance – but be careful! Traditionally newsgroups have been free from advertising and the occasions when they have been used as such have normally resulted in much outrage by the newsgroup user community.



There was one particular incident a few years ago now known as the 'Green Card scandal' which involved a husband-and-wife law firm. At the time the US government had declared an amnesty for illegal immigrants and was providing the opportunity, for those who could comply with certain complex conditions, to become permanent residents – they could obtain a 'Green Card'. This particular law firm had developed a methodology which carried out the compliance procedures quickly and efficiently and, being

avid Internet users, decided to advertise the process in the newsgroups. They decided that the simplest way to get the message out would be to post to 'all' of the groups. Unfortunately, in this instance, many of the newsgroups 'cross post', that is, any posting to one group will also be sent to others. Such a post to 'all' groups then creates a storm of messages which bounce back and forth around USENET, multiplying as they go. This happened to the Green Card messages much to the ire of the USENET community. The flame war which followed was immense and the whole thing used up huge quantities of bandwidth and filled up a multitude of newsgroups to no avail.

The basic message is 'don't use the newsgroups for advertising'. Having said that there is quite a lot of advertising going on in the groups anyway and much of it goes unremarked. One way to promote your product, provided it is appropriate, is to start a newsgroup devoted to the product's users. Starting a newsgroup is a little bit messy as you have to put the proposal to the newsgroup community who vote on whether to allow the group to start up or not. Judging by some of the groups which have been created, the process is not particularly prohibitive and provided that your case is good you should be able to get the group going. The next thing is to let people know it is there. At this stage it is perfectly acceptable to let other groups know that your group exists, so go through the newsgroup list picking out those which by some stretch of the imagination might have an interest in or connection to your product. You can then post a message which tells readers that your group is up and doing business (as it were).

The other approach which is commonly used is a bit tacky, but involves posting 'Hey, I've just found this great site' messages around large numbers of newsgroups. The idea here is that you might attract someone's interest who will go to your site and purchase something. In reality you will probably just annoy very many people who will then refuse to buy your product when legitimately coming across it in the normal course of business.

There are however some newsgroups which are specifically set up to provide a forum for people to advertise and discuss commercial products. These groups normally have the words 'commercial' or 'biz' or the like in their names. For example in New Zealand there are nz.biz.discuss and nz.biz.misc. In groups such as these you may happily

promote your products and services without unduly annoying anyone (unless you make outrageous claims regarding their performance or value). On the other hand, who frequents these sorts of newsgroups? Are they people who would want to purchase what you have for sale? It pays to sit and watch what is going on in the groups before you decide that it is worth the effort to promote your products in this way. Often these sorts of newsgroups are kept going by a small group of very vociferous and opinionated people and you may well not want them as customers anyway!

So use the newsgroups with care. They can be a potential source of business, but also a marketing disaster!

Electronic mail

One of the most important business tools on the Internet is electronic mail, or email as it is more commonly known. While most people think of email just as a means of sending messages from one place to another, it is much more than that.

There are a number of email-based techniques available on the Internet which can be used to great effect by the average business. The important thing to remember about email is that it is a proactive medium, that is you initiate the transfer of information to the customer rather than the exchange being initiated by the customer - as with a Web page. The World Wide Web, from a marketing point of view, is a reactive technology. The customer has to choose to come to your Web site. You cannot get a Web site into anyone's face! Email, on the other hand, can be sent to the recipient whether they want it or not. Be careful here, because this can be a two-edged sword. Junk mail is beginning to become prolific on the Net and many people are starting to react against it. You can now buy filters for email which automatically delete this type of junk mail and we will shortly see these filters incorporated as a standard feature of email packages.

Email addresses will become one of the most important business assets you will have in the future. If you do nothing else after reading this book *start collecting email addresses now!* The business which has a database of email addresses of its customers and prospects has an amazingly powerful marketing weapon. Every time you are handed a business card, examine it for the owner's email address. If it isn't on the card take out your pen and say: 'Your email address isn't on your card, could I have it please?' When you get time, load it into your database.

You now have the ability to make contact with that person using a medium which is virtually immediate in getting to them and leaves a permanent record should they want it. It also has the advantage that the information you send them can be copied and pasted into other documents by them - hopefully a report recommending that their organisation purchase your products or services.

Email comes in a number of forms and we shall now discuss how some of these can be used by businesses to sell products and provide service to customers.

Mailing lists

Mailing lists are a system by which you can mail out a single message to a number of people simultaneously. Their equivalent in the telephone world is the bulk fax list, where you can send a single message to a whole group of people. Mailing lists are extremely useful devices and a very important part of marketing on the Internet.

There will be many occasions when you will want to contact your customers to inform them of some new product or service or perhaps a product change, even your emergency service arrangements over the Christmas break. Mailing lists are ideal for this purpose. The organisation which is using mailing lists to greatest effect will have many lists with its customers possibly appearing on several at once. For example, a chemical products company might have a government department appearing on a list of government entities, companies located in Wellington and major customers, as well as on the lists of customers who use several product categories.

If your customer database is sophisticated enough you should be able to use its facilities to generate the mailing lists. This would involve the database carrying the customer's email address and should also allow you to enter a series of codes which would represent different mailing lists. You will need to get your system support people to write a small program to run through the database and create a series of mailing lists corresponding to each of the list codes on the customer records. This will be a simple process of extracting the email address of each customer who has a particular code. Finally, the lists will be saved in a series of files acceptable to your particular email package.

Clearly, maintaining the customer records is critical to the success of the project. Once the records get out of date or out of synchronisation you will begin to send irrelevant messages to your customers.

They are likely to be rather underwhelmed by this and at best will deluge you with irate email messages. At worst they will leave you! One of the most difficult things to achieve – but also the most powerful from a marketing point of view – is to have the name and personal email address of the individual in each organisation who directly uses or orders your product or service. Email sent to 'admin@netedge.co.nz' is unlikely to find a sympathetic ear and will merely be deleted. You will need to put in a lot of effort into this area. Undoubtedly you will currently have methods by which you find out this information and you will need to educate your sales or other representatives about the value of getting the correct email addresses.

Subscription servers

Subscription servers are just mailing lists to which people attach themselves. Instead of you having to load new email addresses into your mailing lists, anyone who wants to receive your regular bulletins can just add their own email address. The server itself has an email address, for example server@netedge.co.nz and anyone wanting to subscribe merely sends an email to the server with the word 'subscribe' in the body. Upon receipt of the message the server adds the sender's email address (which automatically accompanies all emails) to its mailing list. Of course you have to give them the opportunity to get themselves off the list and the way they do this is much the same as the way they got on, except that the word 'unsubscribe' should appear in the body.

So what are subscription servers being used for? To date, primarily for distributing information bulletins on specific topics or industry areas.



A good example is 'Edupage', which is a weekly digest of the latest events in the computer and telecommunications industry. You can subscribe to Edupage by sending an email to listproc@educom.unc.edu with the words 'subscribe update <and your name>' (without the quote marks or <> in the body of the message). If you have an automatic signoff which attaches itself to your email messages it pays to delete this before you send the message as such extras often confuse subscription servers. Sometimes they are set up by someone as a sort of hobby. A good example is 'This is True',

a server run by one Randy Cassingham who collects truly weird things that people do. Interestingly enough Randy's weekly digest has become so popular, with over 150,000 subscribers in more than 120 countries, that he is having to resort to selling advertising space to cover costs. You can subscribe to 'This is True' by sending an email to listserv@netcom.com with the words 'subscribe this-is-true' (without the quote marks) in the body of the message.

Subscription servers provide an excellent opportunity to publicise your business, products and services. They can also be used to provide regular support information to product users. For example, if you have a software product with a large number of users geographically spread, perhaps around the world, you can use a subscription server to provide them with information on bug fixes and new features in upgrade versions. The advantage of the subscription server approach is that you don't have to have the expense of a staff member keeping track of the users and loading their addresses into a mailing list.

One of the real problems with marketing products and services is finding the customers. Many hundreds of thousands of businesses spend billions of dollars trying to find their customers and most of them are never sure which of their advertising initiatives are bearing fruit. Much advertising is like flypaper - or perhaps more accurately, spider web. It sits out there on posters and hoardings hoping that someone will be attracted to it. The only problem is that after a while it becomes like wallpaper and disappears into the background. The advantage that subscription servers have is that they constantly change and also provide something that the customer actually wants. This does mean, of course, that you have to deliver something that the customer *does* want - otherwise they will unsubscribe themselves out of there.



As an example, take a building supplies company. Builders suffer from the same thing that the rest of us do these days - trying to keep up with the latest technology. The world is travelling so fast that it becomes almost impossible to read all the trade and industry magazines to keep abreast of the latest important developments in our fields. As a service to builders, the building supplies company

puts up a subscription server which emails out a short digest, to anyone who wishes to subscribe, every week or two. The digest contains the latest in the world of building technology, tips, hints, case studies and the like. It is not hard to imagine our builder in the pub on a Friday night talking to his mates about the latest in prestressed laminated beams. As he holds forth on this new approach to high-strength building materials one of his colleagues asks, 'Where do you get all this stuff, Bill?' Bill replies, 'I have subscribed to the Extra Big Building Company's server and I get this stuff sent to me automatically about once a week. It only takes a couple of minutes to read and it keeps me right up to date.' 'That's great, how do I get on to this myself?'

At this stage we find that Bill is now acting as a marketing assistant for the Big Building Company. He explains to his mate that the instructions for subscribing are appended to every issue of the electronic newsletter and he will forward the next copy. In this fashion the subscription lists grow by themselves and your business is being publicised by itself.

The important thing to watch with using subscription servers in this manner is to make sure that the information you are distributing is really of practical interest to those receiving it. If you have missed your market in this area the subscription server will die on the vine. Your customers will vote with their 'unsubscribes'. Keeping in touch with your customers' needs is always difficult and you should take steps to organise a couple of 'tame critics' - people who are in the same business as the target audience for the newsletter and who will provide you with some unbiased (and forthright) comment on each issue.

Have the objectives clearly in mind as you put each issue together. The major objectives should be to increase sales or to increase customer satisfaction. If your subscription is not achieving this then you should consider abandoning it.

If your business is very diverse, consider setting up a server for each of the major customer categories. To continue our example of the Big Building Company, this organisation will be providing products to a variety of building-oriented trades, builders, plasterers, roofers, plumbers, etc. Each of these will have their own special needs and interests and the plumbers will not, for example, be too happy about having to

plough through a heap of building and electrical stuff in order to find plumbing product news. If you don't have much news to put out - don't send anything until its worthwhile. Whatever you do *don't pad the newsletter out*. If you do it will be painfully obvious and you will loose the subscribers very quickly. Once they are gone it will be almost impossible to get them back again - how will they know you have fixed the problem?

It is worth putting plenty of effort into the wording in the newsletters. Don't forget the subscription server material will be text-only documents so you need to be crisp and descriptive in order to sell the products. While we have been concentrating on sales, it is also worth dropping in the odd useful hint or even industry gossip. This will reinforce the subscriber's view of the server as an industry service and will make your (blatant?) sales pitches more palatable.

CHAPTER 5

Popular Internet Mythconceptions

If you are going to seriously use a popular, new technology for business it is useful to make sure that you have separated reality from myth. Like many such phenomena, the Internet has spawned its own set of popular myths, many of which are held up as truths. Some are half-truths and others total fantasy. Those I have looked at below are some which, if you are not aware of their lack of substance, could cause you to make some unfortunate business decisions.

The Internet billboard

The Internet is seen as just that by many people. Clearly, as you look at many sites, you can see that the whole motivation for them is to get up there and catch the 'drive by' crowd. Unfortunately no one 'drives by' on the Net. No one catches your advertisement as they thumb through that magazine or newspaper. People make a conscious choice to go to an Internet site - the only people who visit sites 'willy-nilly' are Internet journalists looking for this week's 'neat' site and Internet addicts, who fortunately are in the minority (and are unlikely to buy your products anyway).

This idea of the Internet as a giant billboard is a myth. It is not a concept you should invest your hard-earned business dollars in. It is true that there are places on the Internet where pure advertising to the passing public actually works. Those banners we see flashing on the search engine pages no doubt catch the odd eye. *Playboy* and *Penthouse* will carry a permanent hot link to your business for around \$24,000 per month. Why? Because they do have 'drive by' traffic. Many millions of people visit those sites every month, but for a purpose other than to see the advertising! They are unlikely to visit your site by happy accident.



A glitzy site will probably get you mentioned in the "what's new" and "what's great" columns.

Glitzy sites bring people back

These days there seems to be frantic competition to see who can build the site with the most fancy graphics. The people who are chasing this graphical 'holy grail' appear to be convinced that the site with the fanciest graphics will capture the most visitors. Certainly a glitzy site will probably get you mentioned in the 'what's new' and 'what's great' columns in the popular press. Does this improve your business? I doubt it very much. People will visit your business site because they want to do business with you, not because they want to be entertained by your cute graphics.

While a fancy Web site may cause the curious to visit once, there is no real reason why anyone would come back once they had seen your

marvels. If anything, the cute stuff will distract a potential customer rather than persuade them to buy.

What customers want is a Web site around which they can easily find their way, one in which they will not get lost and with information couched in terms they can understand. They need to be able to see and understand the products and services you have available and they need to be able to easily order your products and be able to contact you for more information.

All of the above can be achieved without flashing lights and little figures running around the screen. Graphics are an essential part of the Web and your site should use them to make your pages interesting to read. Just don't lose sight of the primary objective - to sell your products and services!

You have to have a presence on the net

I talk to many organisations who have put up a page on the Net and I always ask them why they have done it. A distressingly large proportion of responses are along the lines of 'Well we don't really have the final plan yet but you have to be there, don't you.' Actually, you don't! There is an old saying that goes 'If you don't have anything to say, don't say anything.' This certainly holds good for the Web. A business Web page that just says 'we are here' and doesn't explain why or talk specifically about products and services is a waste of time and money and a major irritant to anyone who stumbles across it.

By all means use the Web to promote your business, but don't do it until you are ready and you can put up a coherent page which strongly promotes your products and has a set of measurable goals and objectives supporting it. You and your business will be judged by your Web page; it is your front door. If it is weak and pointless, that is the impression of your company that the visitor will take away. What is more important, they won't bother coming back to see if you have improved - why should they?

I must have lots of hot links on my site

This has been a thing many Web designers have emphasised with their customers ever since the Web began. Understandably, because there has been a strong desire to see the Web grow - but it should not be at your expense. Having links to other sites on your Web page is the business

equivalent of greeting your customers at the door of your shop and suggesting that they try a shop down the road. Even if the links you have are not to a competitor, once they leave your electronic shop, if they do so before they buy, there is no guarantee that they will come back!

For example, a search around the Web pages operated by New Zealand universities and polytechnics – highly competitive organisations, especially in the overseas student marketplace – finds that none of them provide links to any of the others, with one exception. Wellington Polytechnic (<http://www.wnp.ac.nz>) has a page of links to every other tertiary institution in the country – clearly this page isn't being run by the marketing department!

Use links with caution. If you can see that it will be of real value for your customers and you can be sure that it won't affect your business then include them. If you are in any doubt at all then leave them out.

Once my site is up the search engines will find it

Not so, I'm afraid. Unless your site has links to other sites which are being regularly visited by the search engine knowbots (knowledge robots), there is no chance that they will come to your site. Search engines only operate once they have hold of a workable URL. The only way in which you can ensure that your site will be listed is to arrange reciprocal links to other listed sites, so that a knowbot visiting them for an update will pick up your URL, or to send your URL into the search engines yourself. There is a service that will do that for you. It is called !Register-It! and can be found at <http://www.register-it.com>. I have used this site and found the results to be rather unreliable. The best way is to use the listing option available on the search engine pages themselves. Some of these are simple and straightforward and can be completed in a few minutes. Others are extremely complex and require you to fill out comprehensive forms detailing the name of your mother's cousin's cat. There are virtually hundreds of search engines, but we are beginning to see some amalgamation and the actual disappearance of some. We can presume that the number of regularly used engines will shrink in the future as many will be unable to attract the advertising revenue which sustains them.

Be selective in the engines you use. There is no point in you spending hours of your time listing your site with obscure engines that your customers will never use. Some kindly Web hosts offer a listing

service. Take advantage of this where it is offered for free. Do check, however, that the listing has taken by looking for your site on each of the main engines. Your Web host should also be able to tell you if the knowbots are visiting the site as they keep a record of the identity of visitors.

Some engines ask you for a short description of your site. It is important that you invest care and attention to the wording of this. It will contain the words that your customers will use to find you. The engines which display short descriptions with search results will use the dissertation you give them. It is this description that visitors will use to determine whether your site is the one they are looking for.

I will be able to sell advertising on my Web pages

Interestingly a large part of the Internet has been built on the revenue stream from advertising banners on popular pages. There is however little proof that these advertising banners do actually bring buyers to the advertised pages. In my opinion, those companies who have bought advertising of this nature have done so on the basis that the medium looks as though it is likely to be a good place to post an advertisement and they are prepared to 'take a punt'.

The flaw in the argument is that visitors to sites are rarely in 'browse' mode and are generally focussed on searching for something specific. Also, advertising on a Web page is much different from an advertisement in a magazine which might be left open at your page and is almost always read in browse mode.

I suspect that there will be a change in Web advertising to that of brand promotion rather than direct product advertising when advertisers realise that the returns just aren't there.

The Internet 'Yellow Pages'

Many people are of the opinion that the Web is just some sort of electronic 'Yellow Pages'. This is most definitely not so. The Web has the capacity to be infinitely more than that. Used correctly the Internet can be a driving force in your business and can help you to get out to your customers and sell your products and services. If you put up a page with the 'Yellow Pages' concept in mind, then you will never obtain the full benefits from using all of the functions available on the Net.

The Internet is too insecure for business

If you believe this myth, read Chapter 12. The Internet becomes more secure each day and there is no doubt that it is set to become the world's major trading platform for the future. You can carry out financial transactions in perfect safety right now on the Net. If this were not so we wouldn't see banks such as the ASB beginning to offer banking services on the Internet. Comments about the lack of security generally come from information technology managers who do not understand the Net and are afraid of it. Even worse are those to whom knowledge is power and who will resist any new approach which makes it easy for ordinary non-technical people to use communications technologies without expert assistance. If you have such an IT manager in your business then it might be time for some restructuring!

Change, change, change

One catch-cry you will hear constantly from people in the business of producing Web sites is that you must constantly change your Web site or people won't come back. Let's think about this for a moment. You are selling training videos on the Internet and you want to provide a good service for your customers to come in and go straight to the products you have to offer. They know what they want, all they ask of you (apart from a really good price and quick delivery) is that you let them get quickly to the products in their area of interest and that the order form is quick and easy to fill out. If you keep changing the site look, feel and layout, all you will do is confuse them and they will finally give up and go off to your competitor who doesn't muck them about!

If you are selling golf clubs, how many times will an individual customer want to come back to your site - probably never! Once they have made their purchase, all the glitz and changes in the world won't make them return - why should they, they have their clubs and they work fine. In fact if they do come back, it will probably be to complain - not something you really want anyway!

If on the other hand you are not directly selling anything but rather reinforcing your 'brand' then change is fine. You really have an entertainment site and change is necessary for that type of site. The main thing is to be clear about the reasons you are operating the site and design and maintain it accordingly.

Changing the site is different from maintenance. Clearly your customers will expect you to keep the site up to date, but those changes will be within the established and familiar layout, look and feel that they are used to.

Summary

Be careful about Internet myths. They are often presented as truths. I have found that when it comes to technology there are two types of people in the world, those who embrace it and who look for ways in which it might be harnessed to help them achieve their goals and those who do not understand and who fear the new regime. This latter group also want to profit from the new technologies and do so by presenting seminars and writing articles decrying the new systems and telling people that the whole thing is going to collapse and disappear any day now! I guess we all have to make a living!

CHAPTER 6

Turbocharging Your Business

ATURBOCHARGER IS A device which takes unburned gasses in an internal combustion engine and re-burns them – providing additional power from the engine. The same principle can be applied to information.

All organisations create information in the normal course of their business. Often this information cannot be used to generate income for the business because it cannot be appropriately packaged or delivered to potential customers.

The Internet provides the opportunity to combine a low-cost ubiquitous network with the power of desktop computer systems to rapidly combine and collate information into a variety of formats. This capability can enable you to:

- Add value to existing products
- Create new products
- Develop entirely new markets

Adding value

The Americans have a word for using information to add value to an existing product, it is 'informationalisation': a somewhat daunting word but one with tremendous power.



To illustrate what we mean by informationalisation, take a company selling wine over the Internet. You access the company's home page and it will show you a number of links to the varieties it produces. You might select 'Chardonnays' and you will go to a page which lists all of the Chardonnays they currently have in stock. There may also be some notes on their current vintage, perhaps not yet

ready for market but telling you how it is shaping up and their expectations for it.

If you select a particular vintage you might be taken to a page which will have a picture of the label and some pricing details together with a description of the wine itself – its initial and aftertastes and the growing details which gave it these unique characteristics – perhaps the type of soil and outlook, weather during the growing season and when the grapes were picked.

'What value is all this to me?' you might ask. Well, you might order a case or two of a favourite Chardonnay and invite a few influential guests around for dinner on Saturday evening. As you pour the wine you might say to them, 'You will note that this Chardonnay is quite deeply fruited with strong Cape gooseberry, this is because it was grown on the western slopes of the vineyard and picked late, the soil . . .' Your guests will be appropriately impressed with your knowledge – and who knows, it might help your business association in the future!

Creating new products

The nature of the delivery can often impact the nature of the product. When working through the product definition stage of building an Internet business strategy I often find that my clients come up with completely new products which arise from information they collect or generate in order to carry out their normal business. Sometimes this can turn your business upside down. A classic example is the airline which first developed computerised flight schedules. The airline's business was flying people from place to place. They needed flight schedules so that those people would know when their flights were departing. The new computerised schedules were so successful that other airlines asked to be included and were happy to pay handsomely for the privilege. The airline soon found that the revenue from the computerised flight schedule was exceeding its revenue from the airline business. They had turned the business upside down. Now they had to fly people around so that they could produce the computerised flight schedules which were their main revenue stream!

Developing new markets

What products you can sell and who you can sell them to has a great deal to do with access. Gaining access to the people to whom you can sell is normally a very difficult task. The Internet greatly eases that task and in some cases also allows you to deliver the product itself.



A good example is the New Zealand Writers Bureau (<http://www.writers.co.nz>). This organisation is completely Internet based. It provides a service to people and organisations wanting to have professional writing done, perhaps for 'New Zealandising' product brochures or creating company profiles. The client contacts the Bureau over the Net and emails the document to be 'cleaned up' or the basic material to be turned into the brochure. The Bureau then selects the appropriate writer from its 'stable' and emails the material and instructions to them. The writer completes the project and emails it back to the Bureau who checks it for quality and passes it, again by email, to the client.

As you can see from the above, the Bureau has taken advantage of the facilities of the Internet to create an entirely new approach to the business of writing. The Bureau can be operated from anywhere in the world as the principals are able to access their email from wherever they happen to be each day. An extra dimension has been added by the use of a 'hidden' Web page, the address of which is known only to the principals of the company and which contains details of the writers in the Bureau's stable. Again this means that all the information the company needs to do business is available on the Internet.

It is, therefore, important to broaden your horizons when thinking about those new markets. It is no longer necessary to think only in terms of customers in your immediate vicinity as you can reach anyone in the world. Clearly you might be constrained in the delivery of perishable products but you may be able to find creative ways around even that. For example, florists have been delivering a highly perishable product around the world for many years.

Netscape: New Zealand Business Writers' Bureau

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'Capturing' clients

NZ Business Writers'
Bureau home page.

One very effective marketing strategy is to provide clients with some service function which:

- Is sustainably better than any alternative
- Is extremely convenient for them to use, or
- Would be extremely inconvenient for them to change

Although the Internet is growing at a remarkable pace, there are still a number of organisations not connected. One strategy might be to offer selected customers an Internet connection, which your organisation would arrange, together with the necessary software. This need not be an expensive operation as much of the software is free. Your organisation could offer to pay the client's connection and usage fee for the first six or twelve months – perhaps placing some ceiling on the amount you would subsidise, after which time or amount the client pays the rest.

Another strategy is to offer incentives in the form of additional free hours of Internet connect time for every so many litres of product or hundreds of dollars spent with your organisation.

Better

**Convenient
to Use**

**Inconvenient
to Change**

Internet service provision is highly competitive and you should have little difficulty in negotiating a very good rate with a service provider if you are going to bring them a lot of business. The connectivity costs could be quite reasonable in this case.

Possibly you have too many clients to make this an 'across the board' offer. In this situation you might offer the service to those in the top revenue bracket and perhaps those clients who for one reason or another you are in danger of losing and wish to retain. Once you have the agreement of the client the next step is to set up the software.

The World Wide Web homepage

Connecting to the World Wide Web on the Internet is not a difficult task. The client merely clicks on the Netscape web browser icon and it automatically sets up the communications link and takes you to the host homepage. It is a simple matter when installing the Internet software package on your client's machine to set the Web browser up to call your homepage up first. When the client decides to do some 'surfing' on the Web, they click on the browser icon in their main menu and after a moment or two to set up the connection, your homepage will appear on the screen in front of them. From there, of course, they are able to move freely about the Internet but for a few moments you have had their undivided attention.

What are you going to do with this business opportunity?

If your organisation is selling commodities you might like to take the opportunity to suggest that some product they use regularly is due for re-order (after your computer takes a quick look at the Customer and Debtors master files) or to tell them about some specials that you are offering. If you are a service organisation then there may be some new service product that you can tell them about. Alternatively, pick out some recent event or change in your industry which your clients should be aware of and feature it on the homepage. The important thing is to get them to take notice of the homepage each time they go into the Internet and that they get used to looking for the message! What this is doing is reinforcing your brand in their minds. Whenever they think of a product you sell it is your business which springs to the fore.

Internet business strategies

These days, it seems, everyone is jumping on the Web page band-wagon. Almost everyone you talk to has just 'put up a homepage'. Sadly, few seem to do the necessary business planning prior to getting their homepage up and when you ask them the question: 'Why have you put up a page on the Web' they respond mostly with: 'Because everyone else is doing it,' or 'We wanted to be first in our industry.' These are both very poor reasons for moving into the Internet as a business medium. The Internet is set to be the major trading platform of the future and, like any other business facility, it requires careful planning to ensure that your business gets the most from your investment. You wouldn't, for example, take out a full page advertisement in a national daily newspaper without first working out the marketing strategy behind the move. Likewise before moving into the Internet you should carry out a detailed planning exercise so that your organisation fully understands its objectives and expectations and is able to verify the results.

Products

Every organisation or business has a product and whether it be information or advice or pipe fittings every output from an organisation's endeavours should be looked at as a product to be sold.

A good question to ask is: 'What are our products?' After defining these, ask the question again in the light of marketing these products on the Internet. Is there some way that you can add information to those products to make them more marketable or to lock the client in? Whatever you do, don't just scan your regular printed brochure into a Web page. The Internet is an interactive medium, quite different from print or radio or television, and the marketing approaches must be tailored to suit. There will, of course, be much copy you can re-use in your brochures - the main point is the structure. Brochures are two-dimensional: people have to start at the front and read as they open the folder. When using the Web you can lead your visitor around in three dimensions and it takes a lot of thought, putting yourself in the customer's position, to create a structure which feels logical to the viewer.

What are our
Products?



Who is our
Customer?



Who isn't our
Customer
and why?

Customers

Start with the question 'Who is my customer?' then 'Who isn't my customer and why?' Often someone isn't your client because you can't physically get your product to them - a housewife in Vladivostock cannot be the client of a milk vendor in Wellington! The Internet, however, could well change who your clients are. Mostly it can change the client's ability to find you and your products. If your products are information-oriented then your clients could well be the whole world. Trading on the Internet is all about expanding markets! You must think beyond the box - even the delivery box. In New Zealand today it is possible to purchase electrical power from a company which physically services a part of the country remote from your current location. This is because the product has been separated from the delivery. If you make this separation in your own mind about your own products you may well find that you have just created a whole new market. For example you may be able to create business alliances with organisations who can deliver products in remote areas - much like the Interflora system.

If your customers are remote from you physically, they may also be remote from you culturally. Your particular product or service may have special appeal to someone in another country and if you want their business you are going to have to think like them and figure out how they would be most comfortable navigating around your Web site. It may even be worthwhile thinking about a multi-language site. These are becoming more common, especially where the business has targeted a particular marketplace. For example, many educational institutions and tourist organisations are targeting the Asian marketplace and use various Asian languages on their sites. A word of warning here! Some businesses who do this go out to a language bureau for the translation and forget that they are going to start receiving email in these languages. If you are getting into this business don't forget to arrange an email translation service - with a high-speed turnaround!

Supporting your business

We have been concentrating, throughout this chapter, on ways to get your business out to your customers, but of course the Internet is enormously useful for obtaining information to support your business. There is a massive amount of information (or should I say 'data') out there; the trick is knowing where to look and how to determine quality.

Firstly you will find a lot of good stuff still on the Gopher and FTP servers. This tends to be of fairly high quality mainly because these servers have been maintained by academic organisations and research institutions whose quality assurance programmes have ensured that the information they post is accurate.

The Web now carries the bulk of the information on the Internet and the volume is increasing at the rate of almost a million pages per working day. Unfortunately the quality of much of this information leaves a lot to be desired. Before you rely on anything you pick up on the Web spend some time and effort verifying its source and accuracy. You can generally do this by comparing information from different sources to see if there is any correlation. You can also use the email forms on most pages to contact the author for origin identification.

Search engines

Search engines are now becoming more sophisticated and easy to use. If you are going to depend on the Web for much of your business information it is worth spending some time familiarising yourself with the advanced searching features used by most of the search engines. These allow you to use Boolean operators (and, or, but not, etc) to refine your searches and quickly reduce the number of 'hits' to a manageable number. Undoubtedly you will still on many occasions end up with thousands of hits, even from a refined search, and you will despair of ever being able to handle the volume. Fear not, help is at hand. In the last chapter we touch on the advances being made in the development of Intelligent Agents to help us wade through the huge mass of information becoming available on the Web.

Internet telephony

Yes, you can make a telephone call on the Internet! After all, most ordinary telephone conversations are now digital and the Internet runs primarily on the telephone network – so why not?

Internet telephony has been with us for only a couple of years. In its earliest versions it was half-duplex, that is, only one person could speak at a time – much like two-way mobile radio. Within months of its introduction Internet telephony was available in full duplex and you can now make what amounts to an ordinary phone call on the Internet. You do need a sound card and a microphone for your computer although these days most computers sold have these as standard. For

better quality it is advisable to obtain a free-standing microphone and speakers but these are relatively low-cost items.

Why make telephone calls on the Net? Because for long-distance calls Internet phone can be up to eight times cheaper than normal long-distance charges through your telephone company.

The drawbacks of the current stage of Internet telephony are software compatibility and ease of connectivity.

There are a large number of telephony packages available and in order for two people to speak to each other over the Net they both must be using the same software. The Internet telephone differs from the ordinary telephone in that you can only connect with someone on the ordinary phone if they are not using it when you call. The Internet phone call, on the other hand, can only be made if the other person is on the phone when you call – that is, they have to have their software package up and running on their computer and they have to be connected to the Net.

Nevertheless, Internet telephony can be a very useful tool for business, especially if you have branches or agencies around the country or offshore. The Internet phone will be a technology to watch closely. To find out more about Internet telephony visit the following sites: <http://www.pulver.com/iphone/> or <http://www.jabra.com/html/iphone/iphone.html> or <http://www.vocaltec.com>.

You can keep tabs on what's going on in the Internet telephony world by subscribing to the pulver server. Send an email to: majordomo@pulver.com with the words 'subscribe von-digest' (without quotes) in the body of the message.

Internet conferencing

You can use the Internet to keep contact with your branch staff or with colleagues in another organisation anywhere in the world with whom you might be cooperating on a business deal or research project. A very useful tool called Web Crossing (<http://www.lundein.com>) will allow you to conduct online discussion forums based on a Web site. It is much more focussed than using the various newsgroups and can be a valuable business tool.

CHAPTER 7

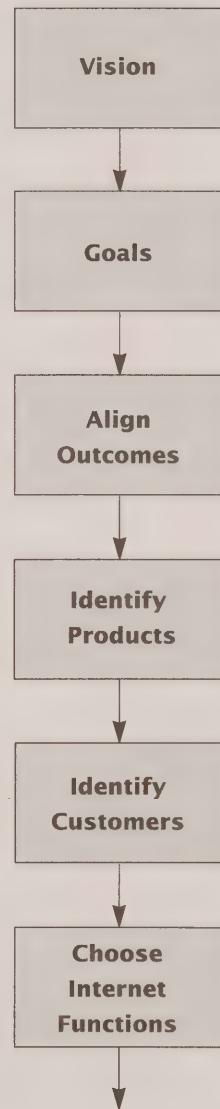
The Twelve Steps to Success

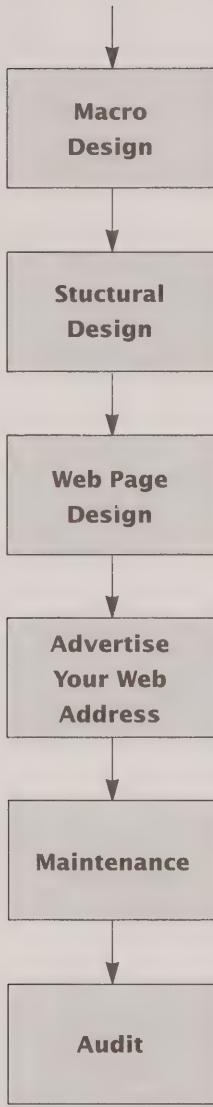
USING THE INTERNET to promote your business is not a trivial undertaking. Nevertheless many have trivialised it to their cost. Poor sites abound, created without any real attempt to define the business need.



I was once asked by a very large insurance company to speak at the launch of their new Web site. I went along to the venue and spent some time looking at the site. They had used a very good electronic commerce company to build the site, it loaded quickly and had an appealing image. The system had some interactivity where the visitor could enter details about their requirements and then get back useful information.

Before the formalities I was discussing the initiative with their national marketing manager. I said that I liked what they had done but was interested in 'how this integrates with your overall marketing strategies'. 'What?' was the response. 'Wrong question,' said my mind. 'Well,' I said, 'why did you do it?' 'To be first in our industry on the Web,' he answered somewhat triumphantly. I pondered this for a few moments and wondered if that was the whole business plan. 'Well you have made a great start,' I said. 'I guess the next thing will be to expand it into a fully interactive sales system. You know how you are sitting around the dining table of an evening and talking to your partner about how you might finance an addition to the dining room? You will be able to sit down at the computer, go into your insurance company's site and do some "what if" stuff about borrowing on your policies.' By this time he was backing away from me with his hands up in front of him. 'No way,' he said. 'That is much too complicated, they can phone us up!' 'But you are at home watching TV when all this is going on,' I responded. 'And anyway, everyone knows that you no sooner contact an insurance agent





than you have your chequebook out writing them a cheque. Also we humans like to get ourselves on steady ground before we get too deep into this sort of thing. We like to have a little knowledge under our belts so that we don't look too foolish.' However it was to no avail. The job was done, the project finished and he was off onto something else. There it sat, their Web site, a very expensive bump in their sea of promotional material, integrated with nothing, not a part of any strategy. A waste of time really! Eighteen months or so later their hits have fallen away to zero and they are thinking of taking it down.

This chapter is all about making sure that you don't follow that insurance company's example. It looks at twelve steps you should take to make sure that you use the Internet to promote your business to maximum advantage, and integrate the initiative into your overall strategic business planning.

The vision

The vision is important as it will concisely express the reason why your organisation is moving towards electronic trading and should answer the questions: 'Why are we putting up pages on the Web and what are we trying to achieve?' Visions, or mission statements, have their greatest use as a 'template' which you can take out regularly and 'hold over' what you are doing to ensure that you are still on track.

To be really useful for this task the vision must have some power. It should be short and to the point, recognisable and most importantly, agreed by all. The vision is best developed in a 'brainstorming' environment and refined in a spirit of cooperation. This way there is 'buy-in' from those who will be most affected.

From the vision will come goals and objectives for the initiative.

Goals and objectives

There is a lot of debate about the difference between goals and objectives. I find that the most useful approach is to have goals as the high-level outcomes and the objectives as the tasks you need to accomplish to achieve the goals.

The definition of specific goals for the use of the Internet as a

strategic marketing tool is an essential first step before any design or specification can be commenced. The goals and objectives should be developed in the same brainstorming session in which you develop the vision.

Goals can be developed from two points of view. Firstly, from a desire to overcome the barriers you see to achieving the things you want to do, and secondly, from the business opportunities you see that you are missing.

The goals expressed must be crisp, clear, structured, pragmatic and above all, measurable. Because your Web site host is able to provide you with very detailed statistics on who visitors to your site were (in terms of their email addresses), how they navigated around your site, what they looked at and whether they followed one of your links, you are able to get a good idea of how successful your site is and the impact of any changes you make.

Alignment

The power of the Internet as a communication tool to open up new business opportunities provides it with the ability to 'tow' your organisation off course. Your chief executive may well be underwhelmed at this prospect and it is wise, at this stage, to compare the goals and objectives you have set for your Internet business strategy with the overall corporate goals to ensure that your initiative is supporting these. If you find some misalignment then you have to review either the project goals or prevail upon the executive group to consider the possibility of some new business directions.

Products

Selling your products is what it's all about so this part of the strategy development is extremely important. It is natural to start with your existing products and services. Think about these in terms of their delivery and how you might promote them over the Internet. Can you repackage these existing products while adding some informational value to them – as in our story about the winery!

Look for new products you may be able to sell on the Internet. Most organisations have information and skills in their particular business area that they might be able to turn into a revenue stream if they could only recognise them as products and then package them appropriately for sale.

Rather than selling the information, you may be able to gain business advantage by giving it away.



Take, for example, a company manufacturing adhesives. This company has some very important information in the head of its chemist. The chemist knows what will stick different things together. If the company extracts that information from the head of the chemist and loads it into a small database with a search engine attached, they can offer it to the public as a free service. If I am wanting to glue some strange materials together, I can call up the database on the Net and enter those materials into the search engine. Perhaps there is more than one solution to my problem, in which case the system will come back with the three adhesives which will do the job, giving me details such as temperature conditions, tensile strength, etc. There will also be a glowing button which is labelled 'Click Here'. When I do so I will be presented with an email order form with the three products already entered and the cursor flashing on the quantity field of the first. Who could resist? In this case the adhesives company has added value to its product by making it more user-friendly, at the same time leading the customer right into the sale.

Customers

This stage looks closely at the customers of your business. It may appear to be a simple task – just get out our customer list. It isn't quite that straightforward as we also need to know who our customers aren't – and then why they aren't.

It is useful to look at our present and potential customers on the basis of the product groupings they are interested in and whether they have some special characteristics in common of which we might take advantage.



For example we might have a catering business operating in the central business district. Our potential customers are all located in the high-rise buildings around us – close in terms of delivery times – and they

are all regularly in the situation of having to provide meals for board and other meetings. We can take some of the hassle out of the task of organising these by providing access on our Web pages to some set menus, with various prices. It is therefore a simple task for the personal assistant to the general manager to enter the number of people attending and the time the food is required, hit 'send' and the job is done! If you keep regular customer details in a small database you can recognise who is accessing the site by their address which accompanies all accesses, and pre-load the company name, address and delivery instructions for them.

Match your goals to Internet functions

Many businesses forget that the Web is not the only function available and useful for doing business on the Internet. In fact it is essential that you understand that the Web is *not* useful for many marketing functions as it is a reactive technology – your customers have to elect to come to your site, you cannot get it to them. The various email techniques are, on the other hand, proactive technologies and you can use them to get your message directly on to the customer's desk. The whole objective is to achieve a nice balance of the two approaches. When looking at the goals and objectives you have drawn up you have a whole palette of technologies you can apply to achieve the desired outcome.

Direct email

Use email for daily contact with your customers. Email has a number of advantages over the telephone – it always gets to its destination, unlike a phone call. Statistics have shown that only one phone call in four connects first time. Email is also able to be manipulated by the recipient. They can forward it to others or cut and paste it into documents. If you are giving instructions they are always in your own words – unlike a phone message which is very likely to be interpreted by whoever receives it and changed as it is passed from person to person. When using these approaches it is a good habit to ask for acknowledgement of receipt.

One thing many businesses overlook when using email to receive orders or enquiries, is to ensure that they have staff resources to handle the workload. When you have an order form on your Web page or say

'email us' there is a high level of expectation on the part of your customer that you will respond immediately. Make sure that your staff do respond. If they can't find the answer straight away they should at least send back a 'we're working on it and we will be back to you in three hours' message and then get the required information out as soon as possible.

Mailing lists

Mailing lists are a method of sending bulk email. That is, one message automatically goes out to a whole bunch of people at the same time. Mailing lists are ideal for sending out targeted product information to selected groups of people. You can set your mailing lists up any way you want, such as by customer type – all the banks together, all the accounting firms, the lawyers. Or you might choose to build your lists by the users of your various products. You would normally expect to see the same customer on more than one list. Remember to keep these messages short and sweet. People don't like to get great long messages. If you want to send detailed information on a new product you think they might be interested in, just send some basic information and use your Web pages for the detail. If you include the address of your Web page in the email it will arrive 'hot' and with one click on the URL they will be looking at the product information on your Web site.

You can also use the lists to send out regular newsletters. Whatever you do, don't pad these. If you don't have anything to say – don't say anything. The last thing you want is to have your business associated with junk email in the minds of your customers.

Subscription servers

Subscription servers are mailing lists to which people can subscribe themselves. If you are in a situation where you are able to produce regular digests of industry information which people will find useful, it is worth looking at setting up a subscription server. These servers are the 'flypaper' of the Internet and they will 'collect' prospective customers. Use them in much the same way as the mailing lists but the same warning about content applies – in fact more so! Subscribers to a subscription server can *unsubscribe* themselves and you will lose them forever once they do that. The messages you send out via the server should always bear hot links to your Web site so that you are tempting the recipients into your site to sell them something. There is no point in just giving them 'warm fuzzies' – you need to get their business as well.

List servers

List servers are a sort of 'conversation' on the Internet. Any 'posting' someone makes is emailed to everyone else on the list (including the sender). They are normally used as discussion forums for interest groups in some particular area. From a business point of view they can be used to support a new product or to get feedback from customers. In the support role they can be effective in signalling problems to product users before the problem actually hits. The customers tend to support themselves on the list, asking questions and supplying the answers. A slightly more positive aspect is that product users can become quite creative in a group situation, suggesting new ways to use the product to each other and also making constructive suggestions to you for improvements.

The downside of this type of list is that it suffers from the typical email flame syndrome. Since you are not actually standing in front of customers when they type their comments they tend to be extremely forthright (read, downright rude) so you will need to be fairly thick-skinned and tolerant. Don't forget that anything you respond to will go to everyone on the list and you don't want to be seen to be abusing your customers. If the situation begins to get out of hand it is best to go offline to repair it. Contact the complaining customer directly by their own private email address and deal with the matter privately.

There are now a number of conferencing products available which act much like list servers but arrange the conversation in threads, allowing participants to develop and follow a particular line of thought. This approach, if it is appropriate to your business, will allow you to record, analyse and monitor the conversation more effectively.

Whatever you do, don't start one of these lists without making sure that you have the processes in place to capture the useful information which will come from the discussion. Also remember that the bad stuff is as useful as the good – it might save you from a lawsuit if you act on it quickly enough!

Audio, video and animation

There will be times when animation and audio and video clips can be used to enhance your products. Use these with caution. They tend to be extremely large files and will take a while to download. Your customers must be able to clearly perceive the value in waiting for them before they start the download or they will get tired of sitting about and go away. Never use them just to be cute or to add 'glitz' to your site;

the overhead and risk of losing the prospect is too great. They can also divert the customer's attention from the real objective - selling them something!

The other thing to remember when contemplating using these sorts of techniques is that many visitors to your site won't have the necessary viewers to interpret these types of files. Sure, you can offer the visitor a link to a site where they can download a viewer, but why should they when there are a couple of dozen sites where they can buy their widgets with much less hassle than yours. The whole objective of marketing on the Internet is to make it easier for the customer to buy your products - not harder!

Macro design

This stage of the development is a high-level overview. It will look at the goals and objectives and determine which of the Internet facilities would be best suited to each - email, list servers, mail servers, World Wide Web, etc. In those areas where the Web will be utilised, the macro design will provide a rough high-level outline of the functions to be incorporated into the Web site and those sites to which hot links should be arranged. You can use a graphical model of the overall system to make it easier for people in your organisation to see how it all fits together.

The completed macro design should be checked against the goals and objectives to ensure completeness. Where there are gaps go back and see how you can fill them. You should recognise that there will be goals you can't meet with Internet commerce. Accept these, do not construct ineffective systems for the sake of 'getting it all in'.

Structural design

Once the macro design has been completed the actual Web site structure can be assembled. This stage involves deciding upon the various pieces of information to be put into Web pages and how they should be structured in relation to one another. The main requirement for this task is an in-depth knowledge of the clients and the products - how the client will be viewing the information they see and the logic that will lead them through the Web page structures. Visualise yourself as the client. How would you want to approach the site? If you were a first-time visitor looking for a particular product, could you find it

easily? If you were a regular customer, could you skip all the introductory stuff and go straight to the order page?

Navigation is important. Make sure that your pages provide back-and-forth links themselves. While most people use their browser's 'back' and 'forward' buttons, your regular customers will probably bookmark your order form page and there will be times that they will want to go to other parts of your site. If the order page doesn't have these links it will be quite inconvenient for them.

The products themselves will also impact on the structure as different types of product will require a different approach.

Remember that your prospective customers will be judging you by your Web site. If it is badly organised they will think that your company is the same.

Some of the main things to take into account when designing the Web structure are:

Access speed

Your customers will want to get to your products as quickly as possible. Make sure that regular customers can go directly to the order form while also allowing new customers to get the information they need to make a purchase decision.

Logical structure

Visitors to your site will expect the pages and the information on them to be arranged in some logical fashion. You are unlikely to sell to a confused visitor, nor are they likely to return! If you have a range of similar products – for example wine – design the structure so that each vintage has the same logic, first the types of wines displayed, then the brands and vintages within each varietal type, then behind each label, details about the making of the wine. If you go to <http://www.tewharera.co.nz> you will see a good example of this type of structure from Te Whare Ra Wines Ltd.

Don't lose them

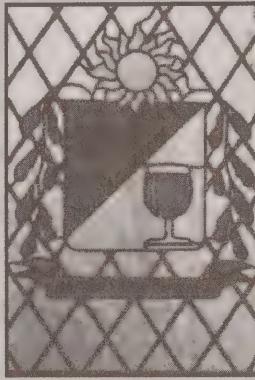
There is nothing worse than getting lost in a Web site. If you have a large number of products and services and your range is complex, spend a lot of time on the site design and construct it so that your visitors can drop 'electronic pebbles' to find their way back. It can be useful if you provide them with some sort of 'map' of the site and where they are in it – a bit like the store directory at the foot of the stairs.

Netscape: Te Whare Ra Wines - Home page

Back Forward Home Reload Images Open Print Find Stop

Location: <http://www.tewharerera.co.nz/>

What's New? What's Cool? Destinations Net Search People Software



Te Whare Ra Wines Ltd

(The house of the Sun)

Marlborough's oldest small winery established in 1979 is owned and operated by Joyce and Allen Hogan.

We are still the smallest winery in the region and with our dedication to premium wine production we have no aspirations to grow any bigger.

As well as door sales the bulk of our wine is sold by mail order only. This is achieved through customers being members of our Mail Order Club.

The wines produced are in very limited volumes and availability is restricted.

Regular tastings are held in main New Zealand centres for club members who are advised by mail. This advise is accompanied by a Newsletter and an Order Form.

Web development by Creative eGi Ltd

Document: Done.

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Te Whare Ra Wines –
Home page.

Overall the design should ensure that any required information can be accessed in no more than three clicks of the mouse button as clients will become annoyed if they have to search endlessly through nested pages.

Web page design

Web page design is extremely important. You should bear in mind that you are competing for the attention of your clients not only with other organisations in a like business but also with millions of other pages (some interesting, some boring) on the World Wide Web. If you are 'the only game in town', that is, if you are the only source of the information presented in your Web pages, then you need not go overboard on page

design – just try not to annoy anyone. If, on the other hand you are in a very competitive marketplace, you will need to get professional assistance with design and structure. Some of the best people to do this work are the companies who work in the TV advertising business. They know how to catch the attention of the client and how to hold it – just what you want for your Web pages.

Your Web page will present to visitors the image of your business. You should give very careful thought to how you want people to see you. Do you want to present an image of a leading-edge company prepared to 'tread where no company has trod before', to take risks and 'get it done'? Perhaps, if you are in the event management business, but not if you are selling superannuation plans. Use the design of your Web pages to put across the image you want to project.

For the actual design of the pages there are a number of basic rules you should follow:

1. The format of the pages should all comply with the corporate style standard for fonts, colours, logos, etc.
2. All pages should conform to the same basic layout and design so that wherever they go in your site the clients will feel comfortable and recognise that they are still in your site.
3. Use colour and graphics to make the pages more interesting but keep large graphics to an absolute minimum. If you need to have a large picture, use a thumbnail which can be expanded by the viewing client if they so wish.
4. Choose your background or 'wallpaper' carefully. Many sites use an embossed image of their corporate logo. These are fine, but do they really contribute anything to the basic information you are trying to give to the customer? In some cases they have been so heavily done that they obscure the wording about the products. See <http://waiariki.ac.nz/ct/ct.htm> for an example of a page which is difficult to read because of the background. By all means brand each page, but do it in such a fashion that it enhances the page not obscures it.
5. Be clear about the message you are trying to get to the customer. Have what you are selling 'up front'.
6. Always have a facility which allows the customer to communicate with you automatically – a 'mail us' button. If you don't provide this you are sending the wrong messages.
7. Make sure that if you do have hot links to other sites they are relevant and live. Links to nowhere – sites which have closed – just annoy the prospective customer.

8. All the pages on your site must be relevant to the products or your company. Don't put 'cute' stuff on your pages just for the sake of it. For example, if you go to <http://www.irl.cri.nz:80/~nzmeat/l1-directory.html> this organisation has a link called 'Steiners View of the Internet' which has the site programmer's favourite cartoon. How this relates to promoting the business is rather obscure!
9. Keep the words on your pages to a minimum unless you have no choice.
10. Use information mapping techniques to ensure that large amounts of technical information can be easily read and quickly absorbed.
11. If you have forms on your pages keep them short and simple. Most people will baulk at having to fill out forms of any type and large complex forms are not easy to handle on the limited amount of screen space provided by a Web browser.
12. Make sure that the pages you have created work towards achieving the goals and objectives you have set for them.

How will they find me?

It's one thing to be on the Web and quite another to have people visit your site. They may well not know that you are there.

There are a number of ways you can improve this situation:

- Include your Web address in your print advertising and on your letterhead and cards.
- Email your Web address to all the clients on your email database.
- Include a special article about your Web site in your regular print newsletter.

There is little point in advertising your URL (Web site address) in television advertising. URLs tend to be long and complex and are unlikely to be displayed long enough for anyone to note them down.

There are a large number of search engines available to Web users. These sites index key words on Web pages around the world. The key words are collected by knowbots which are tiny application programs that spend their time travelling the Internet, visiting Web sites and harvesting the key words from their pages. Like any other visitor, knowbots will only visit your pages if they find out they are there.

You can email your URL directly to the search engines. Each engine has a link on its pages to a form where you can fill out details of your site and they will then be loaded into the engine. I have found that

these do not always 'take' and you have to reload them a couple of times. You can also use the service offered by !Register-It! to post your URL to a large number of engines simultaneously. The basic loads are free but !Register-It! charges US\$39 for its 'Plus' service which purports to load to 100 engines.

It is also necessary for you to first do some work to spread your address around! One way of doing this is to get hot links to your site on the homepages of other sites. This can be time-consuming but the strategy is to approach organisations which support or are on the periphery of your industry (definitely *not* your competitors) and arrange for mutual hot links (you link to theirs and they link to yours). This approach should be taken with some caution (see my earlier remarks about links out of your site). There are also sites which provide indexes of other New Zealand sites and you can email these with your URL and some details of your site. They will generally be only too happy to accept these and put you in their index.

Be aware that some organisations will want payment for accepting a hot link. These are generally the very popular sites (mostly in the USA). The amount of the payment is in direct proportion to the number of visitors they get (the *Playboy* homepage is said to charge US\$24,000 per month for a hotlink!).

Finally, be careful about the words you use on your Web pages. It is these key words which will be picked up by the search knowbots in their travels through cyberspace. To check if you have used the right words, put yourself in the place of a potential client - what words would they enter into a search engine to find you?

Maintenance

Putting up the Web pages is not the end of the job. You should make sure that the page is kept up to date. It's a good idea to have the notation 'last updated dd/mm/yy' on the homepage so that your clients can see that you are keeping the pages maintained (or that you aren't). Site maintenance is essential for the success of your electronic commerce project. If you begin to provide inaccurate or out-of-date information to your customers they will stop visiting. Make sure you change the date each time you check the site - even if you don't change anything else!

The first step is to take a print of each page and collate the copies into logical sequence of responsibility for the update. This might be by

product or service type. Where responsibilities cross within a page or segment, duplicate the relevant pages. Step two is to create a maintenance procedures form for each page. This should have a full description of the page, who is responsible for maintenance and an estimated time for review. Some pages will rarely change – those, for example, which describe the background to the business. Others, product descriptions and prices, will need to be checked regularly.

The pages should be kept in a registry and a bring-up system organised so that each page is checked as its time expires.

The above procedure is in addition to the normal processes your staff should follow when there are changes to products and prices. Add updating the Web site to these normal procedures so that they are done as soon as any changes occur. Don't forget that you are publicly publishing on your Web site and you are legally obliged to supply at the prices you advertise there.

Where your organisation is in a business subject to rapid change, you may decide to link your system to your product database. In this system the Web site will access the database each time a customer selects a page. It is then not necessary to worry about duplicating price, description and availability data on both the stock file and the Web site. Such an arrangement does, however, require you to have special programming work done to create the system interfaces and you will need to talk to whoever provides your main systems support about this.

Audit

This is probably the single most important part of developing your Internet business strategy. If you allow your Web site, mailing lists or subscription servers to get into disarray, your strategy is virtually destroyed and your Internet trading initiative will never meet the goals and objectives you set for it.

The objective of setting up audit procedures is to ensure that the other procedures you have established for maintaining the site are working properly and providing you with the outcomes you need for success. There are a number of actions you need to take to set up the audit system:

Auditor

Someone must be allocated the job of auditing the site. You should choose someone who understands the importance of the task and who

will be dedicated enough to continue to carry out the procedures regularly even if they appear not to be producing any results.

Timing

How often the audit should be carried out will depend largely on the volatility of the site. A site with even low volatility should still be audited at least every two to three months. Those subject to a large number of changes should be audited more regularly.

Procedures

Put together detailed procedures for the audit. This will involve a set of forms to be filled out by the auditor, each containing detailed instructions for the specific parts of the site which are to be audited. After each audit the completed forms should be passed to the auditor's supervisor for review and action if required.

The following is a set of procedures which can be used as the starting point for developing your own. You should tailor the list to reflect important aspects of your own site.

- Check links within the site pages to ensure all pages are accessible.
- Check major pages for accuracy of statements and information.
- If you have pictures of product make sure that they match the product descriptions in each case.
- Reconfirm that the various products accurately reflect the intent of your organisation.
- Review information on the technical pages.
- Ensure that customer reference lists are accurate and up to date.
- Check the last updated date on each page against the expected frequency of change. Those pages which have not changed within the set parameters should be checked.
- Follow all external hot links on the pages to ensure that they are still a) live and b) relevant.
- Review all pages for relevance of the information and graphics.
- Use search engines to check for further organisations which might present opportunities for mutual links.

Summary

The Internet is a powerful tool for business. Like any other tool it can be effective or useless, depending entirely upon the skill of the user. The potential of the Internet to enhance your business is constrained only by your imagination!

CHAPTER 8

How Much Will It Cost?

CLEARLY ONE OF THE most critical factors in a business decision to use the Internet for commerce will be the cost of setting up and operating the system. In this chapter we look at the things that you have to take into account and the approximate financial investment which might be involved. Costs of most of these items will vary, possibly greatly, depending on who you source them from, your distance from an Internet backbone and your ability to do some of the work yourself. The costs outlined below are meant as a guide and a checklist to ensure that when you put together your business plan you have not forgotten anything.

If you have decided to run your Web site from within your own organisation you will have additional hardware and software costs over and above those charged if you elected to use a Web hosting company. On the other hand you will avoid the monthly bills that the Web host will send you for their services. The following are the approximate costs to set up a Web site in your own organisation.

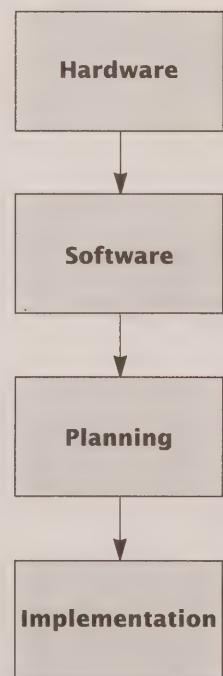
Hardware

Server

Normally a reasonably powerful PC or workstation. The size will depend on the volume of information you are holding and the level of access you expect to get. In general terms you would probably require a much larger server for an Intranet (see pp. 186-96) running within your organisation than you would for a public Web site. Costs will vary according to the size of the machine but will normally be between \$4,000 and \$20,000.

Firewall

A firewall (see pp. 105-09) is a must if you are going to run your own Web server. Again the costs will vary depending on the number of staff you have attached to the network. You will need to have a PC on which to run the firewall software as well as the software itself. You should allow about \$4,000 for the PC and firewall costs run from about \$3,500





Costs of most of these items will vary, possibly greatly.

for six users to \$35,000 for an unlimited licence. Some firewalls also come with a Post Office Protocol (POP) email server for your organisation. This will save you setting up a separate server for this task.

Comms

The extent and nature of the communications equipment you will need will vary according to the configuration of your system and the firewall that you decide to install. You should allow for anywhere from \$2,000 to \$5,000 for this equipment.

Remote Access

If you are operating an Intranet and you want your staff to have the ability to access your databases from home or while they are travelling,

you will need to set up some security access system such as CryptoCard. These devices will set you back around \$150 each and the software to run on your server will generally be bundled with your firewall product. If you don't have such bundled software, you can purchase SafeWord for around \$5,000 and use either CryptoCard-type devices or the totally software option (see Chapter 12).

Software

Unlike many products (in fact unlike many software products) much Internet software has been and is freely available to download at no cost over the Net. The philosophy behind this rather unorthodox marketing approach is that people will take up this opportunity in droves and once you have the whole world using your software you can start charging for the next version. This concept works fine until you bring in the charges and shortly after this a large competitor enters the marketplace offering the same 'free' deal. Computer software users are notoriously fickle and since it is a relatively simple matter to switch from one browser to another they will do so at the drop of a hat (or price). Below are some indicators of prices for Internet software at the time of writing:

Server

Server software varies greatly in price from nothing if you download the basic Web server from CERN in Switzerland to between US\$1,300 and US\$2,000 (<http://merchant.netscape.com/servers/enterprise.html>) for Netscape's latest all-singing, all-dancing version of Enterprise Server. You should carefully evaluate the benefits of the additional features and functions you will receive for the additional cost.

Browser

Browser software (or client software as it is sometimes called) has traditionally been free (if you can call four years a tradition). At the time of writing, Netscape were still offering their latest browser free for individual use but were charging around US\$60 per copy or US\$499 per 10 copies for business use. Microsoft, on the other hand, still have their Internet Explorer product freely available, a situation not likely to remain in the long term. When working on your Internet/Intranet business plan, therefore, it would pay you to factor in an amount of US\$50 per user for browser software.

Search engines

If you have an extensive amount of information on your site and there are perhaps hundreds of pages with many varied products and complex navigation, it is a good idea to provide visitors with a search facility to enable them to quickly access your products or services. A simple search engine product can be obtained from Excite (<http://www.excite.com/navigate/>) at no cost.

Database access

Many Internet business applications will require the accessing of existing business computer applications - to obtain product descriptions, pricing or availability, for example. In this case you will require some programming work done to enable this to take place. You should prepare a brief specification of what you require and obtain a quotation from your IT department or from your outside software support company.

Intranet software

All of the above software will be required for your Intranet system. In addition you may require special interface software to connect some of your existing systems to the Intranet. For example if you have databases which use System Query Language (SQL) as their primary access language you will need to have written a series of interface programs which change Intranet requests in html to their equivalent SQL and then back again when the database produces the answer. You may also have this problem if you open your normal databases up to query by Internet users (see above). The costs in this case will vary. Most database vendors are now producing 'Internet ready' products which will accept direct accesses in html and respond in kind. In order to use these new versions, however, you might need a software upgrade and there could be consequential costs and problems associated with this. In order to build in an appropriate level of costs you should consult with whoever handles your software support.

Windows

Be aware that some of the features you may have decided you need in your browser may only be available on Windows 95. If this is the case and your organisation is still running an older version of Windows you will need to implement Windows 95 throughout the business. This may not be a trivial cost, especially as you will probably need to arrange

some training, and you will certainly need additional help desk resource for the first few weeks.

Planning and implementation

The most important phase in your business Internet project is the planning. For this you should obtain outside assistance from a consultant who can guide you through the necessary analysis and planning phases and who will ensure that the needed disciplines are properly adopted. Both the planning and the actual implementation stages will also require staff resource from your own organisation and this must also be costed accurately in the business plan. Some idea of the resource needed and the costs are below:

Internet strategy

The development of the Internet strategy will generally require the assistance an outside consultant to help you gain a vision of the operation from a viewpoint outside your business and to ensure that you have not overlooked any aspect. The costs of this phase will vary considerably depending upon the size and complexity of the business itself and the experience of the consultant. A small business focussed on two or three major products might expect to pay around \$1,500 to \$2,000 and a larger business up to \$5,000 for the plan. The outcome of this phase will be a complete strategy for using the Internet for promoting your business using all aspects of the Net. It will also include the structure of your Web site and the basic design of individual pages.

Do not underestimate the time investment of your own staff in this part of the development. You will normally be required to set aside a day for an initial 'brainstorming' session which will need to be attended by four or five key staff. In addition there will be a time requirement to attend to the needs of your consultant for review of work to date, retrieval preparation and verification of information and graphics to be used on the site. The amount of time will vary according to the complexity of the business and the project but you should allow from three days for a very small business, to three- to four-person weeks for a large complex system.

Page design

The next stage is to create the Web pages themselves. The cost will be proportional to the complexity of the pages. You should allow for an

hourly rate of around \$60 to \$90 for the work. A complex page with many graphics and links could take three or four hours while a simpler page may be built in fifteen to twenty minutes. If you are able to obtain machine-readable copies of the documentation and/or graphics, the cost could be reduced as a result of time saving. Beware, however, if your graphics are in Apple format as it might be difficult to get them converted into IBM format. In many cases Web builders give up on this and just scan in the graphics. There could be additional work in 'trimming up' graphics such as logos and pictures you want cropped. If so allow for a few extra hours for this work.

Once you have the general layout and rough outline of the pages of your Web site, most Web designers will be prepared to give you a firm quote.

You can, of course, do it yourself. There are a number of low-cost Web building tools coming on to the marketplace and I have seen very creditable pages developed by 'amateurs'. It really depends upon the image you wish to promote, the relevance of layout and graphics to your product - and, most importantly, how much you value your time!

Servers

If your Internet business strategy calls for the implementation of list or subscription servers you will have some construction costs for these. The costs should not be high and a couple of hours work at a maximum of around \$60 per hour should be all it will cost.

Internet connection

Clearly, if you are going to do business on the Internet you need to be connected. For this you will need an Internet service provider. ISPs have a wide variety of charging systems and it can be quite difficult to decide which is best for your business. Historically ISPs have charged by the amount of data you download from the Net onto your PC. This is starting to change and we are seeing more of the ISPs switching to time-based charging. This approach charges you an hourly rate regardless of the amount of data you download. One advantage of this is that you have a better idea of how the costs are going as you use the system. Most of the more up-to-date browsers have a clock which runs in a small window and which tells you the length of time you have been connected. Some of the ISPs have a sliding scale of charges so that the longer you use the system the cheaper it gets. Prices currently range from around \$5.00 per hour for 0800 access to \$2.50 per hour for a

local call connection. Volume rates might bring this down to around \$1.80 if you use \$50 per month or more. Some ISPs provide substantial discounts if you pre-pay for your Internet usage. I have seen these discounts as high as 40% to 50%. This could be worth considering, especially as your usage grows.

In general, a connection will provide you with a single mail address. Most businesses will want more than this. The charge for additional mail addresses can be quite substantial depending on which ISP you use. I have seen this as high as \$10 per address per month. Some ISPs offer up to five free mailboxes with the regular monthly charges and additional boxes in multiples of five for \$10 per month. The cost of additional mailboxes can be significant for your business so be careful to take this into account. There is a tendency to decide to save costs by having a single mailbox which everyone uses. This inevitably constrains the way you use the Internet for your business and is a false economy.

Telecommunications

Depending on where you site your Web pages you could incur substantial costs for leased line access to the nearest Internet backbone. If you wish to host your own pages, do some research to find the nearest backbone node. This could be a local university or polytechnic or it might be a nearby Internet service provider. You will be able to lease a line from a telecommunications company and the going rates will vary according to where you are and the ease with which the telco can connect you. Check with the telcos as to their current rates and the distance they will charge you for. This can vary according to where and how their switched circuits physically run between your office and the backbone. The cost is quite high, however, and to get from the downtown Wellington business district to the Internet backbone at Victoria University was quoted to me by one telco at \$900 per month for a 64K line. Make sure you get quotes for both leased lines and ISDN (digital circuits). In some cases ISDN can be a lot cheaper.

An alternative to a leased line if you are within line of sight to a backbone operator, is a low-cost microwave link. These can now be obtained for as little as \$2,500 per end (you need two) and, once installed do not incur any monthly charges. You will need to come to an agreement with the backbone operator to host your equipment and they may want to charge you something for this. If you are not in line of sight but 'almost', it is possible to 'bounce' the signal off a nearby

building to get around the obstacle. This will require another two sets of dishes (at \$2,500 each) but still could be a viable proposition as these systems run at two megabits per second and if you are expecting a lot of traffic it could be worth it. You may also have the opportunity to share the circuit with a neighbouring business or two and keep down the capital cost.

The telecommunications scene is changing rapidly and we are beginning to see a number of entrepreneurial approaches to offering low-cost high-bandwidth circuits especially in downtown business districts. For example cable companies are beginning to understand that they can offer high-bandwidth data circuits at low cost on their fibre backbones. In addition, initiatives such as the CityLink project, which is rolling out fibre cable around downtown Wellington, offer very attractive rates for very high-bandwidth connections to the Internet. These initiatives are worth following up if you are expecting a high level of activity on your site.

In addition to the connection cost, the organisation connecting you to the backbone will impose a traffic charge. This will be a volume-based charge for traffic in both directions – both to your site and from it. These charges vary greatly according to the backbone operator and the volume you undertake to use. You will need to negotiate with the operators in your area to get the best prices.

Web hosting

If you do not wish to host your own pages, there are a number of organisations which provide hosting services. Most ISPs will host pages for you and there are a number of Web design companies which also offer hosting. The latter will not provide ISP services, just the design and hosting. There will normally be a one-time setup charge for the site. This should not be more than around \$200. Rental of the site is likely to cost between \$50 and \$100 per month and you would normally expect to get a single email mailbox 'thrown in'. In addition to the monthly rental there may be traffic charges. These will vary greatly from host to host and are generally split into local (within New Zealand) and international. Within these you will normally have peak and off-peak rates for both. As I said the rates vary, but a reasonable price list would be:

Local	Peak .20c per megabyte	Off-peak .5c per megabyte
International	Peak \$1 per megabyte	Off-peak .25c per megabyte

Netscape: Akiko International (New Zealand Ltd) - New Zealand On The Web

Back Forward Home Reload Images Open Print Find Stop

Location: <http://nz.com/>

What's New? What's Cool? Destinations Net Search People Software

Akiko International

New Zealand on the Web

VIRTUAL TOUR OF NEW ZEALAND

NEW ZEALAND GUIDE BOOK

TRADE AND COMMERCE

KIWIS HOME AND ABROAD

AKIKO MISSION AND SERVICES

New Zealand on the Web

VIRTUAL TOUR OF NEW ZEALAND

NEW ZEALAND GUIDE BOOK

THE WEBNZ COMMERCE PAGES

KIWIS HOME AND ABROAD

AKIKO MISSION AND SERVICES

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You may decide to host your pages offshore. In this case you should shop around for a good price. The saving in doing this will be offset by the increased inconvenience in dealing with a 'foreign' company. One 'halfway house' might be to deal with a company like Akiko which is based in the US but run by New Zealanders. Akiko (<http://nz.com>) is one

Akiko International
(New Zealand Ltd) -
New Zealand on the
Web.

of the largest and oldest of the New Zealand Web hosts. At the time of writing their charges were around NZ\$40 per month for the first megabyte and NZ\$15 per month/megabyte for additional storage (reduces with volume). The advantage of using a US-based site can be a considerable saving in international traffic if your site proves popular overseas. This approach can also be used for mirroring your site offshore. Mirroring does incur additional costs but US hosting prices are generally very low so this may not be a burden and will probably be well offset by the international traffic savings.

Domain name

You will need to register your own domain name fairly early in the piece. The best way to do this is through your Internet service provider. Some ISPs will do this as a customer service, others will charge. The basic cost charged by the Internet Society of New Zealand through its registry company DOMAINZ for registering a domain name is \$86 in the first year and \$66 each subsequent year. Your ISP may charge you an additional amount for their time in arranging the name but you should be aware that it is not a time-consuming task and usually requires ten or fifteen minutes. There are no ongoing costs other than the annual fee outlined above, but there are some ISPs levying monthly fees and other charges ostensibly as a result of the ISOCNZ charges. You should be careful of these.

Summary

As can be seen from the above there are a number of costs which should be taken into account when you are contemplating using the Internet for your business. I have laid these out in the business plan in Appendix I, mostly in the form of a checklist as you won't necessarily be subject to all of them.

CHAPTER 9

Managing Risk

THE INTERNET IS NO different from any other business endeavour. As well as substantial benefits there are also significant risks. Risk can, however, be managed. The first step is to identify those areas which might prove to be of danger to the business and then to establish counters to those risks. Finally evaluate the efficacy and cost of the counters and whether there are other factors which might prove detrimental to their employment. At this stage you are able to make a decision about whether to continue.

Security

One of the most common comments you hear about the Internet is that it is 'not secure enough to be used as a business tool' or 'It's too big a security risk'. These comments are not unreasonable as the Net has, in the past, been a notorious security risk. The mere fact that most messages passing around the Net go through many (perhaps dozens) of computers on their way to their destinations means that there are dozens of opportunities for someone to intercept and/or change those messages. The risk that this represents is not only to your information. It could also impact your customers who might, for example, feel apprehensive about sending you their credit card details over an unsecured network.

In addition, once you open your network to provide access for your staff to the Internet, you are providing a means of access to your own computer network to the rest of the world. There are people out there who would be only too happy to pop into your network and have a look around to see if they can find anything interesting – perhaps something from which they can benefit.

There are counters to these risks. They have a cost, and the amount of that cost needs to be assessed against the value of the information at risk, the consequential impact on your organisation and the chances of your system being penetrated or your transactions being intercepted. The subject of Internet security is dealt with in more detail in Chapter 12.

Security



Cost



**Technology
Issues**



**Business
Issues**

Cost

While the cost of running an Internet-based telecommunications network might be orders of magnitude less than that of a proprietary leased-line network, there are nevertheless not insignificant charges to be borne by the business. As a prudent business manager you will want to ensure that you have completed or have been presented with a sound business case for the Internet project which outlines accurately all the costs which your business might incur. In many cases there will be 'hidden' costs which might not be obvious to new Internet users. There may well be staff costs once you begin to advertise your presence on the Web and make efforts to attract customers. It is essential that you closely monitor incoming responses and ensure that they are answered immediately. If this does not happen there is a risk that you will lose customers – who will tell their friends about your lack of response. Additional staff could be needed to service your Web site and Internet servers, mailing lists, etc.

When it comes to creating your Web site you will find that there are a great number of individuals and organisations who have set themselves up in business as Web page designers. Not all of these have the highest level of skills. If you have the misfortune to select the wrong designer your costs can multiply rapidly. It pays to shop around!

Be cautious about the final decision you make about the location of your Web site. If you have selected a Web host which is located in New Zealand and the material on your pages is of great attraction to viewers in the US you will be getting a large number of offshore hits and transferring a large volume of data across the Pacific. You will be paying for this! You may not realise the financial impact of this until it is too late. In this situation it is worth considering siting offshore or at least mirroring your site in the US.

Technology issues

There are a number of technology issues which may represent risks to the business.

Providing all staff in your organisation with Internet addresses will normally involve gatewaying your internal email system to the Internet. The way this works is that you invoke the email system's ability to contact the Internet at regular intervals and pick up any mail which might exist for your staff. The system keeps a list of their email

addresses and is able to convert any inwards mail addresses to your internal addresses. Conversely you can use Internet addresses on the internal mail system and that system will automatically recognise them and route them through the gateway.

One issue to watch for is that your internal mail package may not have an Internet gateway, in which case you may have to switch packages (at an appropriate cost).

If you provide Web access to staff there is a risk that some may abuse the privilege and begin to download substantial files, clogging your local area network. This could result in the network failing at critical business times and/or involve you in substantial network upgrades. Staff abuse can be handled by implementing an Acceptable Use Policy which lays down the rules by which staff are permitted to have access to the Internet.

If you are providing general Internet access to your organisation you should be implementing a firewall (see Chapter 12). In this case you will need to obtain additional computer hardware and software, to some extent adding complexity and therefore risk to your business.

If you decide to implement a Web site and run this on your own equipment, you will need to implement a range of technologies as well as have access to skilled technical support. Should this equipment fail and you do not have the necessary support you might put the business you have built up on the Net at risk. In addition you will need to install a leased line (at considerable cost) to the nearest Internet backbone node – possibly your internet service provider.

There are a number of things you can do to reduce these risks. Many organisations use a Web hosting service. If you decide to avail yourself of such a service you will not need to worry about the cost of a leased line and the Web host will take care of technical support and ensure that they have backup systems in place.

Business direction

One of the 'problems' which often occurs when an organisation begins to use the Internet for business is that the possibilities opened up by the technology can 'tow' the organisation in directions away from its planned course. While this may not necessarily be a bad thing, to allow it to happen in a haphazard manner will represent a major business risk. To help you manage this risk Chapter 7 discussed techniques to recognise this situation and to put in place processes to ensure that

either the 'drift' is stopped or the organisation re-evaluates its major goals and modifies them to take advantage of the new business opportunities.

Marketing direction

Most organisations which are in the business of selling products and services to a wide market have a substantial investment in marketing those products. Generally a marketing plan has carefully (at not inconsiderable cost) built up a brand image together with a recognised position in the marketplace and has established marketing structures which have been proven to be effective over a significant period of time. The adrenalin rush to move into Internet marketing can cause unwise and irreversible decisions to be made which may put those structures and market images at risk.

Forewarned is forearmed! By being aware of the danger, a prudent marketing manager will ensure that Internet marketing strategies integrate with the company's overall marketing strategies – not conflict with them, placing the whole marketing initiative at risk.

Public image

Far too many businesses, thinking that they must have a presence on the Internet but not wanting to go to the trouble of doing it properly, succumb to the temptation provided by those Web site merchants who will 'give you five pages for \$2,500 per year'. This approach is a sure recipe for failure. What most don't seem to recognise is that they are 'publishing' when they have a page put up on the Web. Your Web page is the front entrance to your building. A Web site which is badly designed, which loses and/or baffles the visitor, leaves them with exactly that opinion of your organisation. Just as you wouldn't hire someone to answer your telephones who doesn't speak English, you shouldn't put up a Web site which will damage your image for your customers.

Don't forget that when you provide Internet access to your staff they will be out on the Web bearing, in most cases, your business name. They may be posting to newsgroups, a part of the Internet in which it is easy to get into vituperative arguments. They will certainly be using email – something else which can pose a risk to your business. A small study of human behaviour is useful at this point. Most of us, when

involved with business communications of one sort or another, will assume a set of behaviours. If talking face to face or on the telephone to a business colleague or potential customer we will behave with some restraint even if severely annoyed by the other person. This approach helps to prevent the situation from deteriorating beyond recovery. Often when receiving some indirect communication, a message passed on or a written communication, we might dash off an angry written response. In the old days this would be given to a secretary to type up and might come back a day later. By that time we have cooled off and on reading our response decide that it is far too provocative to send and tear it up.

The real problem these days is that electronic mail is *immediate*. In the heat of the moment you sit at the keyboard, pound out an exceedingly clever and acerbic response and *send it off* then and there. You will happily say things to someone in an email that you would never say face to face and this tendency represents a considerable risk to your business. Not only will it greatly damage your image but it could lead to litigation.

Make sure that you impress on your staff that if they are in this situation they should not respond to such situations for twenty-four hours. In general, few cases are so urgent that they need a rapid response and by the next day staff will see the whole thing in a very different light.

Site maintenance

Few organisations embarking on the creation of a Web site accurately estimate the work involved in keeping it maintained. Because the Web is a reactive marketing medium, people have to choose to visit, it is essential that a very high level of quality and accuracy of the information contained in the pages is maintained at all times. If a visitor to your site encounters out-of-date information or errors of any sort, they will write off the site in their minds and never bother to return. How will they know that you have fixed the problem? You have no way of either apologising or telling them that the problem has now been fixed. They will be out there busily telling fifteen other people that your site is a waste of time.

The counter to this risk is to make sure that your Web pages are properly designed, consistently kept up to date and regularly audited (see Chapter 7).

Technical support

Any sort of technology represents a business risk. If you don't believe this statement just look around your business and see how dependent you have become on the use of computers. If some serious software bug took out their computer systems tomorrow, most businesses would virtually grind to a halt. When you embark on a serious marketing approach using the Internet you need to be sure that it will not break down. Once people try to access your site and find it not there they will assume that you have closed down and will not bother to try again. They will head off to a competitor who is very likely to gain their permanent business.

Denial of service

Once your business is connected to the Internet you make yourself available to about a hundred million people (and the number is growing) around the world. Unfortunately not all of them are nice! There are a number of ways in which individuals can use the Internet as a weapon, the main one being to automatically generate millions of mail messages and send them to your address. The result of this bombardment is to flood your mailbox and your ISP's server, as well as many servers en route to your ISP. This sort of attack is known as 'denial of service' as it prevents yourself and your ISP from using the Internet for its proper purpose.

Should you come under such or similar attacks – and they are reasonably rare – you should report the incident to the Internet Society of New Zealand <http://www.isocnz.org.nz>. ISOCNZ allocates domain names on the basis of some fairly easy to comply with, but quite strict rules (see Chapter 18), and will be able to take action which will stop the bombardment.

Staff access

There is little doubt that providing your staff with access to such a powerful tool as the Internet creates a business risk of which you should be aware. I have often heard the comment that one business or another will not provide Internet access to staff because they will 'spend all day surfing the Net' and not getting their work done. This is not a practical approach to Internet use in a business. The use staff make of any business tool is a management issue not a technology issue

and if your management capabilities are so poor that you cannot control staff productivity then your business problems are such that the Internet is not going to be of any help to you anyway. The decision whether or not to implement Internet technologies in your organisation must be made on a sound business plan taking into account all of the relevant factors, not just based on one emotive issue.

As we have seen above, staff access can pose business risks, however. The answer to these lies in good management practices, staff education and a comprehensive Acceptable Use Policy.

Legal issues

One of the major risks that businesses face is the possibility of being sued. The Internet greatly widens the number of people and organisations with whom your business will be making contact. Great care should be taken with how you represent yourself and your products to the public. As I have already pointed out, anything placed on a Web page is published and therefore subject to scrutiny by millions of people, many of whom are more than eager to involve themselves – and you – in litigation at the drop of a hat!

Providing staff with email also presents a legal risk. It is very easy to respond heatedly to a comment posted to a list, thinking that you are commenting to an individual when your response is actually going to everyone on the list (possibly including the person you are libelling).

In fact email documents themselves represent a risk to your organisation. You must decide whether or not you should retain email records. There have been cases of emails being seized under search warrants and used as evidence in court cases. On the other hand, emails are regarded as official company records and may not be destroyed!

Again, it is important that you spend a reasonable amount of time educating your staff to be aware of these risks and to take appropriate precautions.

Business continuance

Once you have made the decision to move into using the Internet to enhance your business you are placing some proportion of your business dependence on one or more outside organisations. The continued operation of these organisations poses a risk to your business.

You will be using an internet service provider to connect you to the

Net. You may also be using a Web host for your Web site and will be relying on that organisation staying in business so that your pages will always be available to your customers.

In Chapter 18 you will see that there are organisations which are selling/leasing third and fourth level domain names. Be aware that in some cases if those organisations go out of business you could lose your domain name.

CHAPTER 10

Breaking the Law on the Net

IN MANY WAYS THE Internet has been rather like the Wild West, a new frontier where the rules were made up as we went along. It's not that there aren't any rules - quite the opposite in fact. A complex structure of 'netiquette' has grown up over the years, which users of the Net defend and apply quite stringently. The problem is that like most of the frontier towns, the Internet has been (and to some extent still is) a place where people are inclined to push the limits of the law, and not just as regards content. Because the Internet is a series of 'pipes' leading into organisations, there are many who would use those pipes to crawl into other people's computer systems for their own gain. This chapter looks at some of the legal risks for the business trading on the Internet.

Publishing

One of the fundamental issues which has a bearing on the whole business of legal risk is that the Internet is a publishing medium. The moment you put up a page on the World Wide Web or post to a newsgroup or send out your newsletter via a list server or mailing list - you have published! Your message or material has moved into the public domain and you become subject to all the laws which pertain to anyone who publishes using the traditional media of print, radio or television.

Unfortunately this fact is not often taken into consideration by many using the Internet. It doesn't seem like publishing for some reason, perhaps because when you view a Web page it's only you who is looking at your screen and it's only that Web page you see - unlike a newspaper or magazine where you can see many pieces of information at a time and this brings home to you that the publication has been designed to be accessed by many people simultaneously.

Risks

There are a number of specific legal risks to which a business trading on the Internet will be subject. We will deal with the more serious of

these separately below, but the actual risk and its severity will depend upon the type of business being done and the nature of the products and services being offered. For example, if you are selling physical products of a relatively minor nature then it is quite likely that the Internet contact will be the only one that you will have with your customer. Your whole representation of your product will be that shown on your Web page. You had better be very sure that you have not misrepresented that product or you will fall foul of the very same legislation which protects customers of the corner store.

On the other hand your product may be too large or complex for the whole transaction to be completed over the Net, or you may be selling a service for which you are separately contracting. Generally in these cases you will be coming to separate contractual relationships with your customer and that customer will be able to ensure that they are appropriately protected by the contract.

Consumer Guarantees Act

This Act is probably the most important piece of legislation for anyone starting out to do business on the Internet. Just because the Net is something new it doesn't mean that commercial activities based around it are excluded from coverage.

The Act imposes compulsory guarantees for domestic purchasers of both goods and services. In the case of goods, these must be fit for their purpose and services must be provided with a reasonable level of skill and care. If you do not meet the guarantees then your business runs the risk of claims which may include consequential damages such as loss of business, etc.

In some cases commercial sales will also be covered where the particular good or service is one which might normally be supplied domestically.

It is not possible - or at least it is extremely difficult - to contract out of the domestic obligations under the Act, but commercial entities may do so provided there is a mutual understanding that this is the case - normally in the form of a signed contract.

If your business is to do with providing some sort of service over the Internet itself - perhaps you are an Internet service provider - then you take the risk that a problem with some other part of the Net will impact on your service and make it impossible for you to meet your obligations under the Act.

Fair Trading Act

The Web is a great advertising medium and, as we will see later, Internet email technologies provide some extremely powerful direct marketing facilities. When you use these facilities you come directly under the provisions of the Fair Trading Act. This ensures that claims about products and services are accurate. You can be liable for damages claims where you have misrepresented the product and it may not be possible for you to contract your way out of liability under the Act.

Undoubtedly your best protection is to take great care to ensure that the product or service you are promoting over the Internet is accurately described and you have been explicit in defining the limits to the service or the usefulness of the product. Some organisations have gone to quite a degree of detail in doing this and it is worth looking at the disclaimer used by the Ministry of Agriculture on its pages at <http://www.maf.govt.nz/MAFnet/disclaimer.html>. A somewhat shorter disclaimer can be found on the Countrywide Bank pages at the foot of their home page at <http://www.countrywide.co.nz>. Your disclaimer should be comprehensive enough to provide you with an appropriate degree of protection considering the risks without being so draconian as to scare away your customers. After all, you at least have to show some confidence in your product. If you are in doubt about the degree of protection afforded by your disclaimer check it out with a lawyer who specialises in these matters.

Intellectual property

The whole intellectual property/copyright issue can be a real minefield on the Internet. One of the main problems is that it is so easy on the Net to pick up some great graphics or text, make a few alterations and re-use them on your own page – forgetting that the original owner of the material can access your page just as easily as anyone else. In many cases material on the Net does not bear any copyright mark or statement. This does not necessarily mean that the material is not subject to copyright law or that you will have a defence against liability.

While you may be aware of the risks of copyright infringement, your staff may not and it is in your business interest to ensure that clear policy has been laid down and is being followed.

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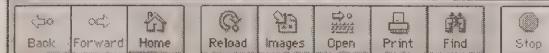
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Minimising risk

As I noted earlier in this chapter, the actual risk to which a business trading on the Net is exposed will depend upon the type of activity in which it is engaged. Clearly, as the Internet becomes more ubiquitous and more heavily used for trade, there will grow up a large number of businesses which will be providing services to customers solely over the Net. These customers will grow to rely on these services as they 'remodel' their own businesses around their ability to access Net services. As this reliance deepens, the risk to the business offering the original service becomes greater, as does their own reliance on the Internet continuing to provide consistent service. Many large multinational companies, for example, are heavily reliant on internal

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Intranets distributed over the Internet. Loss of connectivity can be catastrophic for them.

It is important that you recognise this 'risk spiral' at an early stage so that you can take prudent action to protect your business from claims resulting from a loss of service over which you have no control.

Typically you will attempt to limit your liability by including in your contract some exclusions:

- 'Loss of profit' claims can be very substantial, so you should try to exclude these.

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(continued from
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- You should limit liability only to those aspects of your business over which you have some control.
- It is highly unlikely that you will be able to guarantee 100% service. You should state that some lesser level will be aspired to.

Privacy

Privacy can be a tenuous thing on the Internet. It is easy to breach the terms of the Privacy Act without even being aware of it, since it is possible to capture the email addresses of visitors to your Web site.



Some time ago I spoke to an Internet user who had been browsing briefly through a US-based Internet shopping mall, 'just looking', as it were. The next day he received an email message from the mall site operator saying 'We noticed that you were in our mall yesterday but left without buying anything and we wondered why?' Try doing that in New Zealand and you will be in trouble with the Privacy Commissioner. It's very tempting to pick up this sort of information as you go along and use it as a marketing resource – resist the temptation!

If you have delegated responsibility for updating your Web pages to your staff, make sure they understand the provisions of the Privacy Act. This caution can also apply when using email. It is unbelievably easy to make a mistake with sending email and end up sending it to a whole bunch of people you had not intended to receive it.



Recently I tendered for a project, the administration of which was being carried out over the Internet. The person calling tenders had built a mailing list of those who had expressed interest. On one occasion a short status message was sent out via the list but the administrator had forgotten to 'blind' the 'sent to' list and we all received a list of those companies who had tendered. Such errors are very easy to make and most of us using the Net regularly have managed to embarrass ourselves at least once. When the error is made by a business, however, the impact can be quite dramatic.

Virtually every organisation has personal information stored somewhere on their network. The Privacy Act imposes a number of responsibilities on custodians of personal information, among which is a requirement to store material in such a manner that is secure from access by unauthorised persons. You are therefore responsible under the Act if anyone is able to get hold of a backup disk or break into your network and access the personal information stored there. While the sanctions which the court might impose under the provisions of the Act are not great monetarily, the publicity a conviction could bring might well ruin your business – at very least lose you a lot of customers.

Trans-border data flows

As we saw earlier in the book, the Internet has no geography, no top, no bottom. It is a truly international medium, riding across borders and national boundaries. Unfortunately the rest of the world (the real world?) is not so free and easy and the problems of information flowing across borders are beginning to provide some real headaches for the lawmakers.

This had come to the surface mainly in the area of the transmission of 'pornographic' material around the world via the Internet.



A prime example of the legal confusion caused by the new technology was the case of the Californian bulletin board operator who carried 'adult' material on his server. The pictures themselves were quite legal

in California but not so in some other American states. An individual in one of these states, Tennessee, downloaded some pictures from the Californian site and, after taking one look, called the local sheriff. The state police authorities then proceeded to extradite the bulletin board operator to stand trial and subsequently convicted him. While some might say that this sort of thing 'could only happen in America' it does highlight a growing problem and the fact that the world's legal systems are lagging behind reality in the area of truly ubiquitous international telecommunications.

Defamation

The risk of defamation suits will become a real threat as you provide Internet access to your staff. We discussed the 'immediacy' of email in an earlier chapter and the 'facelessness' of the communication, leading to simple misunderstandings and 'in the heat of the moment' email retorts. A colleague who spent some time running an Internet café once remarked to me that he spent 'half his time writing apologetic emails to people around the world who had been abused by his customers bearing his email address'.

Internet defamation cases are still quite a new thing but their incidence is likely to rise as the Internet community grows along with the number of users who do not pay tribute to the 'netiquette' that has grown up over the many years the Internet has taken to get established. There have been a number of defamation cases dealt with by the courts, perhaps not unsurprisingly mostly in the US. Some good examples can be found at <http://wwwcl.ais.net/lawsuit/article14.htm>.

Electronic mail

While email is hailed by all as a major assist to business communication, it can at the same time pose a legal risk for your business. An email message is regarded legally as a business document and there have been numerous cases of police with search warrants seizing computer networks and searching through email archives for evidence. The risk of this happening to a business is so great that some legal firms have advised their clients to ensure that email archives are destroyed regularly. While I am not suggesting that you take this rather drastic step, you should examine the contents of your email archives and consult your lawyers and accountants regarding your own position. The solution may well be to restrict the types of communication you allow your staff to make over the Net.

Conclusion

From a legal point of view the Internet can be a risky place to do business. You do need to minimise the risk of being sued. The sound business approach is to carefully prioritise your risks, looking at those which have the most frequency or will have greater costs in damages and construct a strategy to deal with those. It is unlikely that you will

be able to eliminate all risk as such an approach may prevent you from doing any business at all. The objective is to manage legal risk to the extent that it is maintained at an acceptable level.

CHAPTER 11

Is the Internet Respectable?

AS ANY ASTUTE BUSINESS manager will tell you, the three main things to look for when setting up a retail business are location, location and location! You would think twice, for instance before setting up a high-class furnishings business in the middle of a run down, low socio-economic suburb. This homily holds just as true for cyberspace as it does for the physical business world. Just as the physical world has its sleazy neighbourhoods and lowlife people, so does the Internet. The trick is in understanding where these are and what impact they will have on your customers' view of the medium. It also helps to understand what is being done to clean up the Net and to deal with the 'riff-raff'.

Pornography

Much is made of the issue of pornography on the Internet. Just as pornographers were early adopters of print, photograph and video technologies, so they have been quick to adopt the Internet as an ideal distribution mechanism.

Yes, pornography does exist on the Internet and yes, some of it is certainly beyond the scope of acceptability for even the most broadminded of people. However it by no means occupies such a large proportion of the Internet as some people (even international magazines) would have us believe. To use an analogy, if the whole of the Internet was a library, the real hardcore pornography would comprise a single thin magazine on the bottom shelf in a back corner.

Control mechanisms

To a great degree the pornography 'problem' is beginning to be self-modifying. Hardcore pornographers are not in the business for their health, they want to make money. It is interesting to see that the great plethora of free 'porn' sites are now starting to demand that viewers pay money to access their wares. In general the only 'currency' they accept is credit cards. It is difficult for children to gain access to a credit card



unless it is one belonging to their parents. Most parents are likely to ask a question or two when a charge comes through from 'Pink Kitty's Sex Shop'.

Another self-control mechanism now starting to appear is the 'gateway organisation'. These organisations provide a sort of 'age verification' system to those sites which still do not wish to charge for access. To register with a gateway you pay a very small fee, usually five or ten dollars. The only method of payment acceptable is by credit card and we have discussed the problems of access by children above. Upon registration with the gateway you select a password and from there on if you want to access a site with 'adult' material you are first sent by that site to the gateway to have your password verified.

There are several packages available to parents of young children which provide a site lock-out system. The package contains a list of sites

Just as the physical world has its sleazy neighbourhoods and low life people, so does the Internet.

deemed to contain unacceptable material. When the user selects an address to be accessed on the Internet the package checks to see if it is on the list and if so it blocks access.

A rather more sophisticated variation of the above is the PICS system (Platform for Internet Content Selection). In this approach a number of organisations have set themselves up as 'rating' agencies which examine sites and rate them for content – violence, sex, etc. The user of the system can set their software up to a) use a particular rating service, and b) set the actual rating level for content to be accessed. When a site is selected through a browser the PICS software first sends the request to the rating agency which verifies that the site is within the limits set by the user. If so it continues to access the selected site. Otherwise the user gets a 'sorry!' message and the site cannot be accessed.

While many people vilify the Internet for the pornography, the fact of the matter is that many child pornographers especially, who may have continued under cover indefinitely, have been caught because they used the Internet and their activities discovered.

Clearly the pornography problem is gradually being dealt with and its impact on the perceptions of the public as to the respectability of the Net will lessen.

Terrorism

It is under this general heading that a recent spate of home-made bombs have fallen. According to the authorities the recipes for these devices are to be found on the Internet. By the same token identical recipes are to be found in encyclopaedias commonly held in most libraries. The issue is a very emotive one and is bound to reappear each time someone sets off an explosive device. Hopefully the reality of this threat will eventually become obvious and the issue will just disappear.

Denial of service

As mentioned earlier, the Internet has spawned its own type of electronic terrorism and a few technically clever but morally misguided people have occasionally used the facilities of the Internet to bombard the object of their disaffection with email messages.



At the time of writing this book one Internet service provider was reeling under an attack from a disgruntled customer who wrote a small program to subscribe the ISP to thousands of mailing lists. The ISP began to receive thousands of mail messages per minute, effectively flooding its system and stopping legitimate customers from gaining access. This type of attack is known as 'denial of service' and can be absolutely catastrophic to the target organisation. Fortunately such attacks breach the legislation under which most countries operate their telecommunications companies and since the perpetrators are almost always caught they can also be the subject of substantial civil suits as well as the criminal charges which are laid by the police.

Denial of service attacks promise to be a very expensive hobby in the future!

CHAPTER 12

Security:

Is the Net Secure Enough?

BECAUSE OF THE NATURE of the way the Internet was built and the type of people who were using it at the beginning, security was never a major issue with its design. For this reason, when the Internet moved into the commercial world (or rather the other way around!) the lack of security became a major problem. In fact security became the reason many information technology managers, who felt uncomfortable with this new and strange technology, used to keep the Internet out of their business. There are still a few of these people around but the pressures on them from their management to bring the commercial benefits to their companies are becoming such that they are finally dealing with the real issues of security on the Internet.

This chapter takes a pragmatic view of the real security problem and the way in which the risk of security breaches can be minimised.

How real is the risk?

Just as there are people out there walking around the streets looking for an opportunity to break into your house, so there are people out there on the Internet wandering around looking for an opportunity to break into your business.

Talk to any computer security consultant and they will regale you with any number of 'horror' stories about attempts to breach systems. Although a little out of date now, a good and very entertaining book to read is Clifford Stohl's *The Cuckoo's Egg* about the use a group of German hackers made of the Internet and its component networks to break into military computers to steal military secrets and sell them to a foreign power. The most interesting part of the book concerns the techniques the hackers used to move from computer to computer virtually undetected, each time getting one of their victims to foot the telecommunications bill. Other more up-to-date books are *Catch Me If You Can*, about the hunt for America's most notorious hacker Kevin

Mitnick, and *The Watchman*, the story of one of the world's most brilliant hackers, Kevin Poulsen. Again the fascinating part of these books is the techniques used to break into the systems and to avoid detection. Not all of these techniques are computer-based and the most skilled of the hackers employ tricks and techniques previously the domain of the burglar and the confidence trickster. The most chilling aspect of these stories is the ease with which hackers are able to penetrate systems and the level of vulnerability of many organisations who should know better.



A colleague involved in the security area recently told me of an attempt which was made to break into the networks of a number of his clients. The clients in question have sequential IP (Internet Protocol) addresses and my colleague has their security systems set up to email him when unauthorised attempts to break into their systems are made. On the occasion in question he began to receive warning messages from the sites one after another. Someone was trying sequential IP addresses to see if they could break into a system. They were also hiding their own address so that anyone picking up their activities would not be able to trace them. My colleague's security systems are set up in such a fashion that his staff can monitor all transactions as they occur and they watched this particular hacker probe the sites one after another trying to find a way around the defences. Finally the hacker made a slip and let his real IP address through. Once they had this it was a simple matter for the security company to trace the address and make a call to the United States university from which the attack was coming. Their reaction was so prompt that they caught the hacker still sitting at the keyboard, still trying to break into my colleague's client's sites.

On another occasion an Internet user spoke to their security consultant about periodically dropping their security firewall (more about firewalls later) for two seconds so that they could synchronise their site with the Internet clock. They were advised very strongly that the risk of leaving their site unprotected was too great. 'What harm could be done in only two seconds?' they said. 'It's not really a big risk.' They went ahead. Sure enough

someone noticed that they were doing it, sat and waited for them and the next time the firewall went down they were in. The hacker reset the system clock back 24 hours and left. The changed time triggered all sorts of automatic backup procedures and destroyed a lot of current files, costing the business significant losses.

What can happen?

A number of things can happen to your business if someone manages to break into your system, all of them nasty!

Firstly, a hacker could get into your system and use it as a base to attack someone else. The intruder, once behind your defences, is able to assume the identity of one of your own staff – as far as the Internet is concerned. Then any excursions they make back out into the Net carry your address with them and can be traced back to you. Let's say that our intruder decides to launch an attack on a site belonging to one of your competitors. If that site's defences are reasonably sound, they will detect that they are under attack and that *you* are the culprit. You will have a hard time convincing anyone otherwise!

The attacker may, however, be bent on getting into your system to steal information. They could be a competitor (or someone in the business of selling information) looking for your customer list or your marketing plan for the forthcoming year or the formula for your very successful products. If you are lucky (?) you may not even know that they have been there and the first indication of something amiss is when you find your customers beginning to drift away or your competitor coming out with an almost identical marketing campaign just two weeks before yours is due out.

If you are 'unlucky', the intruder will totally trash your computer systems. This will be a real test of your business preparedness and staying power. If your backups are in good shape your normal disaster recovery procedures should get you going again in a day or two. If not then you will be in real trouble. Many a sound business has gone to the wall because they irretrievably lost their debtors files and other critical information.

How much security do I need?

This is a much-asked question. The answer basically is 'just enough to protect your business and no more'. There is little use in protecting your system from events which, for example, might destroy your business environment anyway.

One simple but effective approach is to look at the value of the information in your computer systems. While this in itself is a non-trivial exercise it can be done. Consider the costs to your business should the information be destroyed or if a competitor was able to access it. There could be legal costs if you were sued because of the loss and you must include the cost of reinstatement of the computer files. Next, consider the risk of such an event happening. If the risk is low – perhaps your information is of little use to a competitor, and/or you take good backup and keep those files in a secure place, then you can justify only a minimal amount to protect the system. If, on the other hand, the risk is high, you have very desirable information, or you are an organisation working in a contentious area, then your security budget is likely to be very substantial. Of course you can reduce some of the risks by doing some quite simple things – such as regularly taking comprehensive backups of your files and dropping them into the bank or some similar facility each day, but in the main you will be more likely to be considering implementing a firewall for protection.

Firewalls

Just as a firewall in a motor vehicle protects the passengers from harm in the event of a fire in the engine compartment, a computer firewall protects your network from attack by unauthorised intruders. The whole objective is to enable legitimate visitors to obtain the information which you are happy to give them while at the same time preventing these 'visitors' penetrating right through into your network and having free run of your data files. It is not the job of this book to discuss the technical aspects of the techniques such hackers employ to gain access to your systems – you will find a fascinating and frightening explanation of these in the three books I mentioned in the introduction to this chapter – but rather it is my job to impress on you the very real risks which exist and to suggest some approaches which will help mitigate those risks.

How do they work?

Firewalls have now become a standard approach to network security. No prudent organisation will allow staff to access the Internet or attach a public Web server to their network without first implementing a firewall. To explain how a firewall works I will use a simple analogy. Imagine an oblong cylinder with absolutely smooth walls and a hole at each end. At one end I am able to reach into the cylinder to almost halfway. From the other end the computer is also able to reach in, almost to halfway. The cylinder is too long for me to reach the computer and let it drag me into its network, neither can I use any handholds on the walls to draw myself through. What I can do, however, is to write my request on a piece of paper and place it on the floor of the cylinder just within reach of the computer. The computer picks up the paper and goes to get the information I require (provided I have the authority to ask for it) and places the answer within reach for me to pick up in turn. In this way we are able to communicate with one another without my being able to get to the other side of the tube.

In this case my arm is an electronic access by a visitor to a computer site. The owner of the site does not want visitors to personally gain access to his or her data files so they have installed a firewall. The smooth sides of the cylinder represent the operating system of the computer which runs the firewall. It has been stripped down so that it carries out only the very basic task of passing the messages from one side to another. Any other sort of interaction would provide opportunities for me to represent myself as someone else and gain access to the network – for example password access, etc.

The ‘arms through the holes’ represent the fact that the operating system merely passes messages from one access port to another and the computer on the other side picks up the request message, carries out any required verification of the visitor and either passes the information or a rejection of the request back to the firewall, which is responsible for communicating with the visitor.

Physically a firewall consists of a computer, generally a reasonably fast Pentium processor, which runs a stripped-down UNIX operating system. The functions provided by the operating system are only enough to run the firewall itself – no additional functions will normally be found. Firewalls are sold on the basis of the number of users. You should be able to get a small system for around \$3,000 up to an unlimited user system for about \$35,000.

Getting your staff through

You will often have a need to allow legitimate staff access to your system while they are away from work, perhaps working from home or travelling around. There is a little device called the CryptoCard (<http://www.cryptocard.com>) which will allow you to provide remote access to your business in perfect safety.

Many people will tell you that all you need is a good password system. Basically there is no such thing. Because passwords must be made up and remembered by humans they carry an inherent flaw. People use inappropriate passwords, don't change them, write them down on things and leave departed personnel live on the system. There are readily available computer programmes called 'password crackers' which automate the task of breaking passwords. You cannot place the security of your business in the hands of an ordinary password system.

The card on the other hand is a secure one-time password system. It consists of a small credit card-sized device which contains a special microchip embedded into which is a special formula. To connect to your computer you dial up your network and, after keying in your identification name, the central computer will present you with an eight digit random number. You then key this number into the CryptoCard together with your personal identification number and it responds with another eight digit number. This you key into your computer which sends it to the central system for verification. Because the central system has the same key formula as your CryptoCard it is able to carry out the same calculation and verify that you are who you say. This type of security is very hard to beat as even if someone does intercept the password it is of no use to them for any other session.

Another system which operates in a similar fashion to the above is SafeWord (<http://www.securecomputing.com>). SafeWord is a software system which makes use of a variety of CryptoCard-type devices - there are a number of these on the market and SafeWord works with most of them. It will also operate as a software-only system, where your PC will display a graphic which looks like one of the cards and you just have to click on the numbered buttons to enter your pin number - as opposed to using the hardware cards.

Where you need to let your staff gain entry to your computer systems from home or while they are travelling the CryptoCard/SafeWord approach provides excellent value security for your business!

Firewalls and firewalls

As with many things in life there are different 'flavours' of firewall. The description above is a rather simplistic outline of the functions of firewall systems. They do in fact carry out a number of tasks in executing the protection function. Many of these individual tasks can be done by devices other than true firewalls, but it is the combination of the functions which provides the true firewall level of protection. You will occasionally see devices, therefore, which advertise themselves as 'firewalls' which in reality only carry out one or two functions, some of which are, on their own, fairly easy to circumvent.

When determining which firewall to implement you cannot be too careful. Spend some time carrying out research and use the Internet to find out about the various products you are considering. If you are offered a 'box' which the vendor claims is a firewall, and the price seems very cheap, be suspicious!

What to look for

- The firewall must be more than just a packet filter. The packets of data which carry information around the Internet contain information identifying the sender. It is possible to obtain devices which allow you to block transactions which are not from specified locations. This is not a secure method as it is possible to 'spoof' this information and make it look as though packets come from a reliable source.
- The firewall should be running on a computer which is completely dedicated to the firewall alone. Running the firewall software with other programs provides the hacker with an opportunity to find a 'back door' around the firewall.
- The firewall must not allow anyone (even your own staff) to gain access to the computer's operating system. Once that happens the firewall is easy to circumvent.
- The firewall software must provide its protection without user IDs and passwords. If these are present, a hacker can crack them and gain entry.
- The firewall must not reveal your internal network to the Internet. It should use a technique called proxy agents to cover the identity of anyone coming out of your organisation onto the Internet. It should also repel probing techniques such as 'finger', refusing to provide any network structural information.

- The firewall must be able to be configured and tuned to suit your own requirements.
- The internal code of the firewall software itself must be secure from tampering by hackers and your own staff.
- You should be able to get comprehensive usage information from the firewall. This should include who came through from your own side and where they went as well as information on requests for information and attacks against the firewall. The system should provide an audible alarm if it detects an attack.
- You should be able to control usage of the Internet through the firewall. For example, you should be able to disconnect access from a specified time to prevent staff staying back after work to 'surf' at your expense.

Internet tunnels

The other side of Internet security is protecting transactions as they travel through the Net. Because the structure of the Net relies on millions of interconnected computers freely passing transactions on to the next stage of their destination, most transactions will pass through quite a number of computers on their journey. Any one of those computers is able to monitor those transactions, store, sift through, and read them back at some later date. This will, for example, give someone the opportunity to access your next year's marketing plan if you are sending it to head office in New York or Sydney. They might also intercept your credit card number or alter some information and pass it on to the unsuspecting person with whom you are communicating – even pretend to be that person and respond to you.

There are two main aspects to transactional security. The first is known as authentication – making sure that the person you are communicating with is really them. The second part is securing the message itself.

What Internet tunnels do is to create a secure 'tube' through the Internet. If you can, imagine the Net as a great complex of interconnected machines and the Internet tunnel as a steel tube snaking its way from computer to computer until it reaches its destination. It's like having your own piece of wire connecting your organisation to the person you are doing business with. This 'separate wire' is, of course, 'virtual'; the tunnel is set up using techniques which first carry out authentication of each end of the communication and, having done this

then encrypt the message and send it off. The whole business 'conversation' is then carried out with all subsequent messages encrypted with a (hopefully) unbreakable code.

Encryption

Encryption is the art of turning ordinary words into garbage by using a special key or keys which are known to the recipient of the message. Most encryption systems can be broken by passing them through very large and powerful computers running special programs to decipher the code. In general terms the longer the key, the more difficult it is to break the code and the more powerful the computer you need to accomplish this. The whole question of encryption is one which is generating much argument, fuelled by the growing trade on the Internet and the need for more and more secure systems. The debate centres on the US government which has outlawed encryption systems which cannot be broken by its own law enforcement agencies. One product known as PGP (pretty good privacy) falls into this category. Developed in the US and unable to be exported because of the law, PGP has nevertheless escaped the US boundaries and is generally available around the world.

How and when you need to encrypt your transactions is something you need to make a decision upon yourself. Suffice to say that if you are transmitting critical business information or informational products across the Net you should protect your data in some way.

Payments security

The major method of making payments on the Internet is the credit card (see Chapter 15). As we have seen above, however, credit card numbers can be picked up by anyone through whose computer the transaction might pass. The question to consider here is just how high a risk this is? Over the past two years, during my many speaking engagements I regularly ask my audience if any of them has experienced this type of credit card fraud – or if they know of anyone who has, or know anyone who knows anyone . . . In all that time I have only encountered one person who knew someone to whom this had happened. We regularly send credit card numbers by fax and by post. We never have any idea who receives them or to what unauthorised use they might be put. We often give our cards to the waiter at restaurants when we arrive and

never see them again until we leave. Clearly we take greater risks with our credit cards in normal daily life than the risk they might be exposed to over the Internet.

Nevertheless there is a risk and 'perception is reality', so if your customers think there is a risk, then there is one!

There are several ways to overcome these problems. The first approach is fairly simple, if time-consuming. Your customer sends you their credit card details using 'snail mail' (the ordinary postal service), together with the address to which you send the goods. You keep the card details in a secure offline database and never send the goods to anywhere except the destination contained in the signed letter. The customer then orders goods in the normal manner over the Internet and need not send a card number with the order. It is certainly possible for someone to send a 'counterfeit' mail order, but since you will not accept a change of address by email, the goods will go to the real customer who can send them back. This system is inexpensive and effective if laborious to set up – not all that good for impulse buying!

There are a couple of variations on this theme. The first uses an intermediary organisation which holds the details of the credit card. The advantage here is that you only have to send one set of details but can buy goods from any business which trades through them. In this system the intermediary will intercept the customer's email order and immediately send a request for confirmation back to them, (the way the Internet works, even if someone 'spoofed' your email address, a return to your address will always go back to you rather than them). Once the customer has confirmed the order the intermediary will complete the card transaction and send the order on to the supplier.

In the second variation, in order to address the setup time factor, you ask customers to dial an 0800 telephone number. This will connect them to an interactive voice response system (IVR) – a computer system which is able to automatically interact with the customer and ask them to enter their credit card number and expiry date through the telephone keypad. The system will then provide them with a unique personal identification number (PIN) which they will use for subsequent transactions on the Internet. It is true that this number could be intercepted but it can only be used to make purchases from that one company and that company will have a record of where it sent the goods.

Finally, Internet browsers are able to work in secure mode. For

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Location: <http://www.cybermall.co.nz/>

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Welcome to New Zealand's first comprehensive virtual shopping mall. Peruse our clean, green products and services—come on in...

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[Guestbook](#)
[Hosting](#)
[Membership](#)
[Search](#)
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[Servers](#)

CyberMall New Zealand was last updated on 12/6/97.

Contact The CyberMall New Zealand Coordinator (+64 -3 364 5888). Web Site Design by Plain Communications Ltd and Promethean. Graphic Design by Internart and Promethean. Hosted and maintained by Plain Communications Ltd.

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CyberMall New Zealand – shopping, commerce and entertainment.

example, you can get a piece of server software called 'Internet Commerce Server'. This allows you to encrypt the transactions from both ends. Using this software your customers can be secure in the knowledge that when they send you their credit card numbers they will be perfectly safe. When Commerce Server is operating the 'key' icon which resides in the bottom left-hand corner will be whole. Most of the time you will notice that the key has a broken shaft; this indicates that your transactions are not secure. One example of a secure site can be found at <http://www.cybermall.co.nz/nz/accent/>. This company sells ties and scarves on the Internet and displays a certificate of authenticity for their site's public key encryption system.

Summary

There is no doubt that the Internet is inherently insecure. If it had not been, then it would not have grown so fast into the tremendous vehicle for commerce that it has become.

There is a trade-off in the security business. Generally speaking, the greater the level of security that you place in a computer system, the more difficult you make it to operate. You need to think carefully about how many barriers you place in front of your customers. You don't want to cripple your business right from the start.

There are techniques and software products which can make the Internet as secure a place to do business as a banking system. Choose the level of security that is appropriate for your business.

CHAPTER 13

Focus on the Customer

THE INTERNET IS NOT DISSIMILAR to many other marketing tools in that it is important to carry out research to establish the nature of the marketplace, predictions for its growth and those segments which you can more easily enter and capture. This chapter discusses the demographics of the Net, its level of growth, which products are best suited to it and how to establish an early cash flow.

How big is the marketplace?

While estimates vary on the size of the Internet, there is general agreement that at the end of 1997 there were around one hundred million people regularly using it. This is undoubtedly swollen considerably by a 'ghost' population of Net users who are the families of users who take their notebook computers home in the evenings and find that their partners and children are keen 'surfers' in their own areas of interest.

To a great degree, the number of people connected at any given time is reasonably irrelevant. What matters is the level of growth, whether it is sustainable, and the nature of user demographics. While the growth statistics vary from country to country and depend on how you look at them, it does appear that the Net has been growing for quite some time now at a rate of around 18% per month. This does appear to be a sustainable rate as the momentum of the spread shows no sign of letting up. Information technology guru Nicholas Negroponte in a recent visit to New Zealand said that by the year 2000 there could be a billion people on the Net. Certainly this is attainable if a growth of 18% per month was to be sustained, but whether it will be is the real question. Sooner or later practical considerations such as the ability of the telecommunications infrastructure will begin to impose constraints on growth. It is inevitable, however, that pressure from Internet users will provide a growth spurt to infrastructure development and there will be a self-sustaining upward growth in both infrastructure and the Internet.

Growth figures are obtainable from a number of sources and it is worth looking at the yearly report of information technology growth

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Location: <http://www.moc.govt.nz/comms/it/it97/>

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Statistics on Information Technology in New Zealand

Max Templeton
IT Policy Unit
Ministry of Commerce
March 1997

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1. Introduction

This is the fourth annual release of this paper. This release has

- updated figures for hardware imports and exports,
- updated figures for trade in software and services and for the size of the New Zealand information technology (IT) market.

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published by the New Zealand Ministry of Commerce, available at <http://www.moc.govt.nz/comms/it/it97/ind>.

In Chapter 14 we look at the results of a survey carried out in January of 1996 by AGB McNair. These figures showed quite clearly that the Internet is already a healthy marketplace, one that cannot be ignored. Suffice to say, it does appear that anyone contemplating using the Net

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(continues on next page).

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- updated figures on the size of the Internet in New Zealand;
- updated figures for employment in segments of the IT industry;
- an updated figure for the number of computers in homes;
- new figures on the number of computers in New Zealand schools; and
- new figures for the number of Internet connections in schools and the number of schools that intend to connect to the Internet.

In previous issues of this paper figures relating to IT occupations have been included. As these figures were derived from census data which has not been updated yet, data on IT industry occupations has not been included in this issue of the paper. However, it is intended that a special issue, including updated data from the 1996 census, will be published later in the 1997 year.

This document is also available here as a MS-Word version 6  document (744KB) or as ISBN 0-478-00387-0.

This hypertext form of this paper includes the underlying data tables as well as the graphs.

1.1 Acknowledgements

The majority of the figures in this paper have been sourced from Statistics New Zealand. Other sources are credited specifically where they have been used. Some of the figures are taken from a survey of IT businesses conducted by Statistics New Zealand and jointly sponsored by the Ministry of Commerce, Information Technology Association of New Zealand, Tredenz and Statistics New Zealand.

1.2 Defining Information Technology

As well as the traditional data processing industries, telecommunications and broadcasting are shown in many of the figures in this paper. This reflects the fact that these industries process information using technological means, and the increasingly blurred distinctions between these sectors.

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Statistics on Information Technology in New Zealand
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for commerce can do so in the confidence that it already represents a huge marketplace and will continue its growth for some time.

Demographics

While we can prove that millions of people are using the Internet, what sort of people are they? The AGB McNair survey indicated that the main population at that time were mainly in the 25 to 40 age group (although the demographics of the Internet change daily). Clearly there would be many products which would not be well suited to that marketplace.

On the other hand the people falling into this category are major consumers of a wide range of products and do provide substantial scope for innovative approaches to marketing new and existing products.

Finding the right product to sell

I do believe that you can pretty much sell any product or service on the Internet. I frequently make this claim at seminars and presentations on using the Internet for business.



On one occasion I was challenged by one member of the audience who claimed that it was no use to his business. I asked what he did and he said that he ran a bar/café. I suggested that on the way back after the seminar he should purchase a large goldfish bowl and place it on the counter in the café with a notice suggesting that customers place their email addresses in there to go in a draw for a weekly free lunch with a bottle of wine – the winner to be advised by email. Having obtained the email addresses he could then create a mailing list of his customers and, if the café was having a particularly quiet day, send out to them in mid-afternoon an email message advertising a special 'happy hour' to commence that evening. In these cases it is important to get the subject of the message right. Many people are now filtering mail – either automatically or manually by rejecting messages with subjects in which they are not interested. In this case I suggested 'Cheap Drinks'. The clientele of such a business are unlikely to delete a message with this subject! The messages would, in the main, go to his customers through email gateways and appear automatically on their screens. From there individual customers who decide to take up the offer are able to forward the advertisement to their friends and workmates with the suggestion that they meet at the café after work – effectively doing our friend's marketing for him!

I also suggested that if he wanted to get into the corporate catering business he could put up a series of Web pages advertising standard lunches – the \$5 lunch, the \$8 lunch, etc (perhaps with a picture of the food). Customers would only need

to decide what type of food they wanted, enter the number to be catered for and hit 'send'. The café operator would provide a notification of receipt of the order and could guarantee delivery within one hour of receiving the message. This type of service would be tremendously popular with secretaries and personal assistants to whom the job of arranging these functions falls.

At this stage our friend at the seminar had a smoking ball-point and we had to return to the seminar subject.

If you are looking for a good product to sell on the Net you should start with 'grudge' purchases. Grudge purchases are those we find it not pleasant to make. For example, few people when finding that they have an empty petrol tank in their car, think to themselves, 'Great, now I will be able to call in at a gas station and fill the tank.' These types of purchases are ones we know are necessary to make but are a nuisance to us. If you can find such a product and remove the grudge factor then you have a winner.

Start with your customers

Rather than putting a lot of effort into finding new customers for new products right at the start of your Internet marketing project, why not use the system to improve the service to your existing customers first? You already know who they are so the task of finding them is simple, and generally they will be receptive to anything which enables you to provide them with better service. You must, of course, make sure that the service really is better or your new project will never even get off the ground.

You may need to do some 'door knocking' in the early stages of the operation to explain what it is that your new service will do for your customers – even offer them some opening specials. Paper-based brochures can also be useful at this early stage but the objective should be to have word of mouth expand your business for you.

It is important to get some idea of the degree to which your marketing approach will be accepted by your potential customers. To do this you will need to carry out some traditional market research. The approach you should take is strongly one of improved service – and possibly one of reduced costs. Even if the actual reduction is not

all that great, the customer may perceive additional benefits in your service. A good example of this is the New Zealand Companies Office who now offer a company search service over the Internet at <http://www.companies.govt.nz/>. They still charge for the service and it is a few dollars cheaper to use the Net than it is to appear in person at their office and obtain the traditional paper copy. Their customers, however, can clearly see the additional savings they are making by not having a staff member spend time travelling to the office and back to get the information they require. There are therefore very clear net gains to both the customer in terms of saving in time, and to the Companies Office in that they are making a good profit from online sales.

New Zealand
Companies Office
Home Page.

Netscape: New Zealand Companies Office - Homepage

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Location: http://www.companies.govt.nz/search/owa/dbinit.initial_page

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COMMERCIAL AFFAIRS DIVISION

OPTIMAL SITE SETTINGS SERVICE OVERVIEW WHAT'S NEW ENTER SITE

WELCOME TO THE MINISTRY OF COMMERCE
COMMERCIAL AFFAIRS DIVISION
INTERNET SERVICE

Please Email enquiries & comments to [Webmaster](#)

This site provides services which generate e-mail reports in a PDF format. You will therefore need PDF viewing software to display these reports received via e-mail.

To download a PDF viewer please click [Get Acrobat Reader](#)

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Another good example of customer focus is the Centre City Wine and Spirits site (<http://www.centreicity.co.nz>). Centre City are a liquor merchant operating from large premises right in the centre of the downtown business district. From the start they were very clear about their customer focus – it was the businesses in the highrise buildings around them.

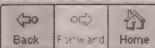
They specialise in providing a speedy delivery service to corporate offices. For most businesses liquor is a grudge purchase. The responsibility for making sure that there is a supply of refreshments for the board meeting or that special customer presentation falls mainly to the personal assistants – extremely busy people who don't really want to spend an hour arranging for the selection and delivery of liquor. Similarly the purchase of the Friday night supplies for the social club is a major drain on the time resources of most large (and small) businesses. Centre City offer a quick and easy way to order your liquor supplies and also have linkages to caterers and other like suppliers.

They also specialise in those more difficult to get products and high-value wines. The site has been designed to aid the customer and provides a 'shopping assistant' which helps you to make your selection from the many thousands of different products available and places your purchases in the shopping cart. Many people learning about wine are coy about displaying their lack of knowledge on the subject and the Centre City site has a number of different approaches which provide discreet assistance and prevent you from embarrassing yourself in front of guests by purchasing the wrong wine.

By focussing on their specific market, Centre City were able to carry out a very aggressive and targeted marketing campaign to build their site's business rapidly.

Tune as required

You might not get it quite right first off in terms of addressing your marketplace. To help with this your Web host will be able to provide you with extensive statistics on the visitors to your site. You will get some idea of where they are coming from, locally or from overseas, and by looking through the addresses some idea of the types of people –

Location: <http://www. centrecity.co.nz/frames1.htm>
[What's New?](#) [What's Cool?](#) [Destinations](#) [Net Search](#) [People](#) [Software](#)


Order Now
Fine Wines
Champagnes
Ports &
Sherries &
Whiskies &
Doux &
Aldi &
Sauvignon
Blancs &
Cognacs
Beers
Other
Products

Members' Rates
Club Information
Home

Look at our huge selection

2000 + Fine Wines
100 Champagnes
250 Whiskies

And much more on display

Centre City

WINE & SPIRIT MERCHANT

New Zealand's Premier On-Line Wine & Spirit Merchant

If your browser does not support frames, [click here](#) for ordering categories



Clubs:

[Join Now!](#) - Membership is free

Wine Club:

Next meeting 26 August 6.30-9.00
Forum Cafe, Waring Taylor St,
Wellington

Malt Minders:

23 September
James Cook Centre
The Banks Room
Glenfarclas
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G&J Smith
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from the academic domains, companies, organisations or government. The trick here is to use the statistics intelligently to try to adjust your market focus. Some sites get their visitors to 'log in' as they arrive. The price of accessing the site is to fill out a short form which asks you for details about yourself, type and size of business, product interests, location, etc. Upon submission of the form you are provided with a password to use on return visits which bypasses the questionnaire. This is similar to the process for those sites which charge a subscription but in this case there is no charge, the business running the site is simply collecting market research information. Subsequently, each time you make a visit to that site your password will be recorded and later, in conjunction with the original details you provided, will be used to provide extensive statistics to the site owner.

This sort of information, coupled with the fact that the operator of the Web site can also see which pages you visited, in what sequence and whether you used the order form or left without making a purchase,

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next page*).

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Location: <http://www.centrecity.co.nz/frames1.htm>

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Tasting
In Store During July/August

Check out the details

12 noon to 6pm

Friday 25/7 Vidal - Black Label

Friday 1/8 Waimarama - Hawkes Bay - Very distinctive reds

6th, 7th, 8th Aug Penfolds new release

Friday 8/8 Peter Lehman, Barossa Valley - Australia

Saturday 9/8 Grange from Penfolds

Friday 15/8 Daniel Le Brun and Amarula Wild Fruit Cream

Friday 22/8 Evans and Tate from Western Australia

Friday 29/8 Nobilo

Friday 5/9 Classic Chilean Wines

Bookmark this site now!!
 Things never stand still at Centre City Wine & Spirit Merchant,
 so keep an eye on this site for exciting developments

Any Comments or Questions?
 Send us an e-mail

Select a category below and go shopping!
[Fine Wines](#) | [Champagnes](#) | [Ports & Sherries](#) | [Whiskies & Bourbons](#) | [Distilled Spirits](#)
[Brandy & Cognacs](#) | [Beers](#) | [Other Products](#)

 By ordering from this site, you are certifying you are over 20 years of age.



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Centre City Home
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is very powerful stuff. You get a clear picture of the demographics of your visitors and whether your site is easily navigable. A word of caution however, people generally react badly to being asked to provide information about themselves. Not only are they more concerned about privacy issues these days but there is also a fear that if they provide this information they will be deluged with marketing information from companies to whom you have sold your mailing list. Finally, people just don't like filling out forms! You will need to provide them with reassurance that the information you collect will not be used for other purposes and also find some incentive for them to fill out the questionnaire - perhaps they will go in a regular draw for some small prize.

A second word of caution - you should never use the information provided to send unsolicited material to your subscribers. If you want to use their email addresses on a mailing list you should clearly state this on the form which they fill out or, if you are collecting email addresses some other way, provide them with the option of leaving

your list. One good way to collect addresses for this purpose is to have a 'can we keep you informed?' page on your Web site. In this way your customers will be able to make the choice of whether or not they want to receive your marketing information.

Cookies

Another method of collecting market information is by the use of 'cookies'. Cookies are small pieces of information which Web sites are able to insert into your browser 'while you aren't looking'. Every time you visit that Web site from then on, you take the cookie with you. They are used as an identifier so that the Web site can know who you are even if your address has been covered by a firewall. The objective is to gather information about the sorts of sites that you visit and the types of products in which you are interested. They are used for all sorts of focussed advertising, for example if you are interested in fishing and visit a lot of fishing oriented sites, after a while you will notice that the banner advertisements on your favourite search engine will always be about companies selling fishing products. You can turn the cookies off in your browser. What will happen then is that you will start to get messages when you visit particular Web sites asking you if they can leave a cookie with your browser - and perhaps warning you that the Web site you are entering might not view properly unless they can do so. This latter is because some sites use the cookies to determine which browser you are using and are able then to tailor the pages to suit.

Some good advice

The following has been reprinted with permission from one of the top shopping sites on the Internet. Shopping Direct, or 'The Shopper' as they refer to themselves (<http://www.shoppingdirect.com>), is a site well worth visiting if you are in the retail business and you want to see what people are doing. The site has a huge number of individual retailers and it is a good place to quickly and easily see what works and what doesn't. The Shopper have developed a series of ten tips for retailers looking at using the Web for doing business and these are reproduced below:

Top ten tips for on-line malls and merchants

Are shoppers coming to your mall or store site, then leaving without making a purchase? Number of hits or number of visitors are meaningless figures if sales aren't happening. If your site is getting lots of

Netscape: The Shopper - Your Guide to Shopping Online Malls & Stores

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Location: <http://www.shoppingdirect.com/>

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Welcome to The Shopper!

The Shopper is your **number one** shopping starting point on the web, with thousands of online malls and stores listed in our searchable database! Here you'll find objective reviews of each site, shopping tips, and an extensive array of search options.

Search by site name (or substring):

Enter a single product keyword, or a phrase (i.e. doll furniture):

Display our best 5-Star Rated Sites:

You can combine any or all of the above search options!

Search!

- Search via our Predefined Categories
- Browse Our Super Site Award Winners
- Browse our Alphabetical List of Sites
- Geographical - by Country or US State
- Search our Product Comparison Demo

NEW!

Notes & News

- [The Shopper Super Site Awards](#)
- [Women Online News -Top Story](#)
- [Gift Guide](#)
- [Awards for The Shopper](#)
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Merchants

- [Submit Your Shopping Site for Our Review](#)
- [Update Your Listing](#)
- [Send Us A Description of Your Site](#)
- [Top Ten Tips for Mall Merchants](#)

Company Info

- [Company Mission](#)
- [Who We Are](#)
- [Sponsor Us!](#)
- [Send Us Your Comments & Questions](#)

HERE COMES THE SHOPPER - LIVE!

Best viewed in Netscape which accepts live server push updates.

100% of 2K (at 427 bytes/sec)

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The Shopper - Your
Guide to Shopping
Online Malls & Stores
(continues on next
page).

traffic but few buyers, and you are confident that your merchandise is appealing, perhaps it is time to look at your site design. Shoppers that are frustrated with the on-line shopping experience may turn to a hard-copy catalogue, or (gasp) even get in their car and go to the local mall!

In the last few months Internet Shopping Directory's Shopping Advisor has browsed over 400 electronic malls and storefronts while writing reviews for The Shopper, a comprehensive directory of on-line malls with reviews and helpful shopping hints. After being immersed

Netscape: The Shopper - Your Guide to Shopping Online Malls & Stores

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Location: <http://www.shoppingdirect.com/>

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(Click on the image to go to the camera page and see the live image and a description of the product or event being displayed.)

This site is best viewed with Netscape Navigator 2.0/3.0.

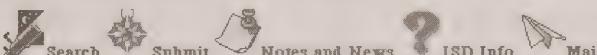
NETSCAPE Now!

Download Netscape Now in order to view the live video broadcast.



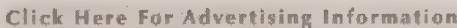
 **"ShopSite is the easiest way to open a store online!"**  





Last updated: February 19, 1997.

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in the world of electronic commerce from a consumer's perspective, we have some suggestions to pass along. These tips will make the customer's on-line browsing more pleasurable, help your site keep the interest of the shopper, and increase your chances of making a sale!

Many malls in the start-up phase are being listed in the major search engines before they actually have any stores in order to market the mall to prospective tenants. However, the unwary shopper entering the mall may spend several minutes there before realising it's an empty shell.

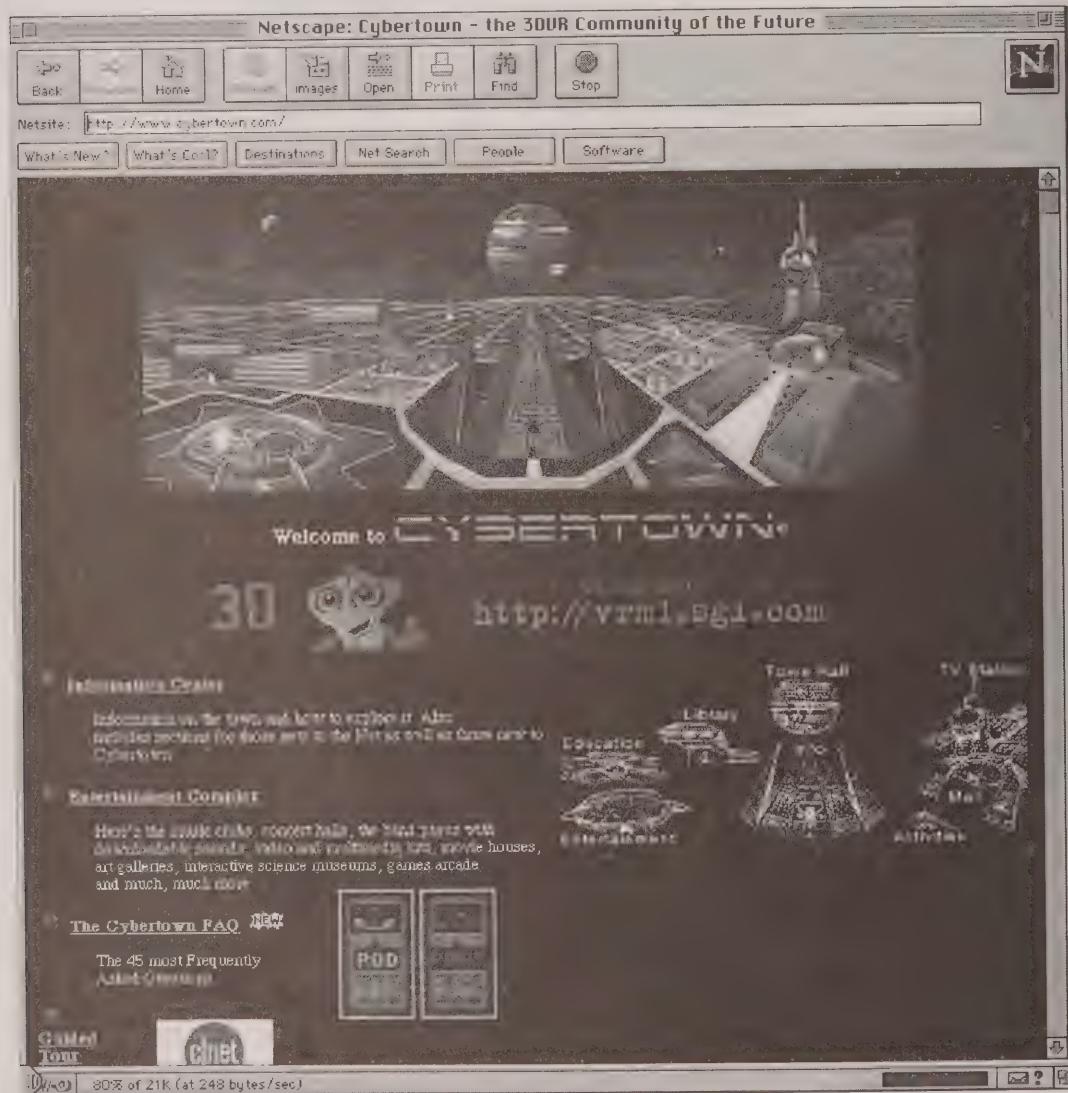
The Shopper - Your Guide to Shopping Online Malls & Stores (continued from previous page).

Tip #1

Clearly define a highly visible shopping link on the home page that goes straight to a list of existing stores, search function, or category list. If there are no stores in your mall yet, say so on the home page.

Cybertown – the 3DVR Community of the Future (*continues on following pages*).

In the same theme for malls under construction: site designers may create a beautiful organised hierarchical list of categories and sub-categories for desired tenants and products. There is nothing more



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Netscape: Cybertown - the 3DVR Community of the Future

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NetSite: <http://www.cybertown.com/>

What's New? What's Cool? Destinations Net Search People Software

Guided Town

Best of the Web

TOWN SERVICES

News from Earth, Weather, TV, menus, groceries, convenience, movie ticket, Earth's Review (local news and info), jobs, shopping, transportation, Post Office and more.

Announcements - Learn about the latest news and events

3DVR Visit parts of Cybertown in multi-user 3D Virtual Reality

WHAT'S NEW? - There's always something new to see or do in Cybertown

The Cybertown Map - including the 3D VR Explorer

SEARCH **selections** 

Cybertown Community Leaders 

Other Colonists who are here to help you with whatever you need

The Spaceport

Travel to other worlds, including Earth

NEWS

The Cybertown Newspaper 

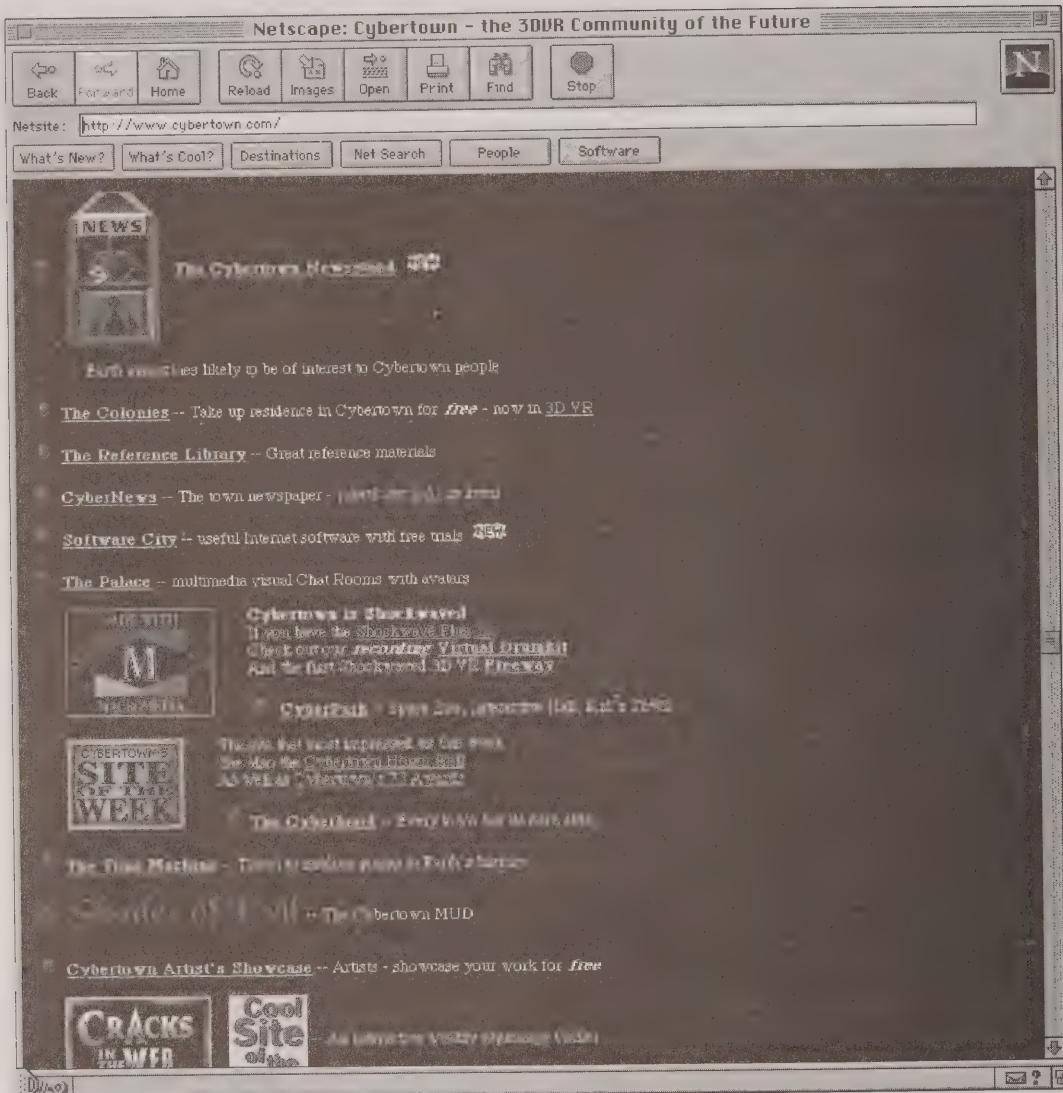
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frustrating than picking through a multitude of links, credit card in hand, only to have almost every link end in Under Construction.

Tip #2

Make your links to non-existent areas inactive (greyed out) so it is clear to the shopper that the links should be bypassed. Some good examples of this can be found at The Gorge Store (<http://www.cybertown.com>). On-Line Scotland (<http://www.ibmpcuq.co.uk>) takes a giant step further with a single

Cybertown - the 3DVR Community of the Future (*continues on following pages*).



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Cybertown – the 3DVR Community of the Future (*continues on following pages*).

page menu structure layout that clearly shows what is in each linked section, provides direct access, and also shows which mall parts are inactive!

Electronic stores need to offer services above and beyond the capabilities of the conventional hardcopy catalogues. With hardcopy catalogues it is fast and easy to flip through catalogue pages, the photo quality is usually excellent, purchases can be made from home, the

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NetSite: <http://www.cybertown.com/>

What's New? What's Cool? Destinations Net Search People Software

CRACKS IN THE WEB

Cool Site of the Day

An alternative virtual city for the future

Colony City -- Create your very own sections of Cybertown [NEW](#)

The NetGate -- Travel to random Virtual Worlds

 -- Live music to surf by - click [here](#) for instructions

 **ODO's Voice Print Security Office**
-- ODO from Star Trek: Deep Space Nine
handles Cybertown security

Downtown Cybertown -- Check out [Computer Boulevard](#)'s share of the action

YOUR VOICE

The Business District -- Business services and information

Shopping Mall -- Stop by and do a little shopping

Cybertown's ATM -- Get cash at your service

La Caffe -- Low Calorie coffee, 3DVR coffee, and more

New Rodeo Drive -- Upscale shopping

Old Town -- Harking back to the 20th century (includes the **Campus** and **Spirituality** Center)

Beyond Cybertown -- Mysterious wasteland surrounding Cybertown

Below Cybertown -- You don't know what you don't know

The Education Center -- Schools and education

Activities -- This is where you play

WWW E-mail

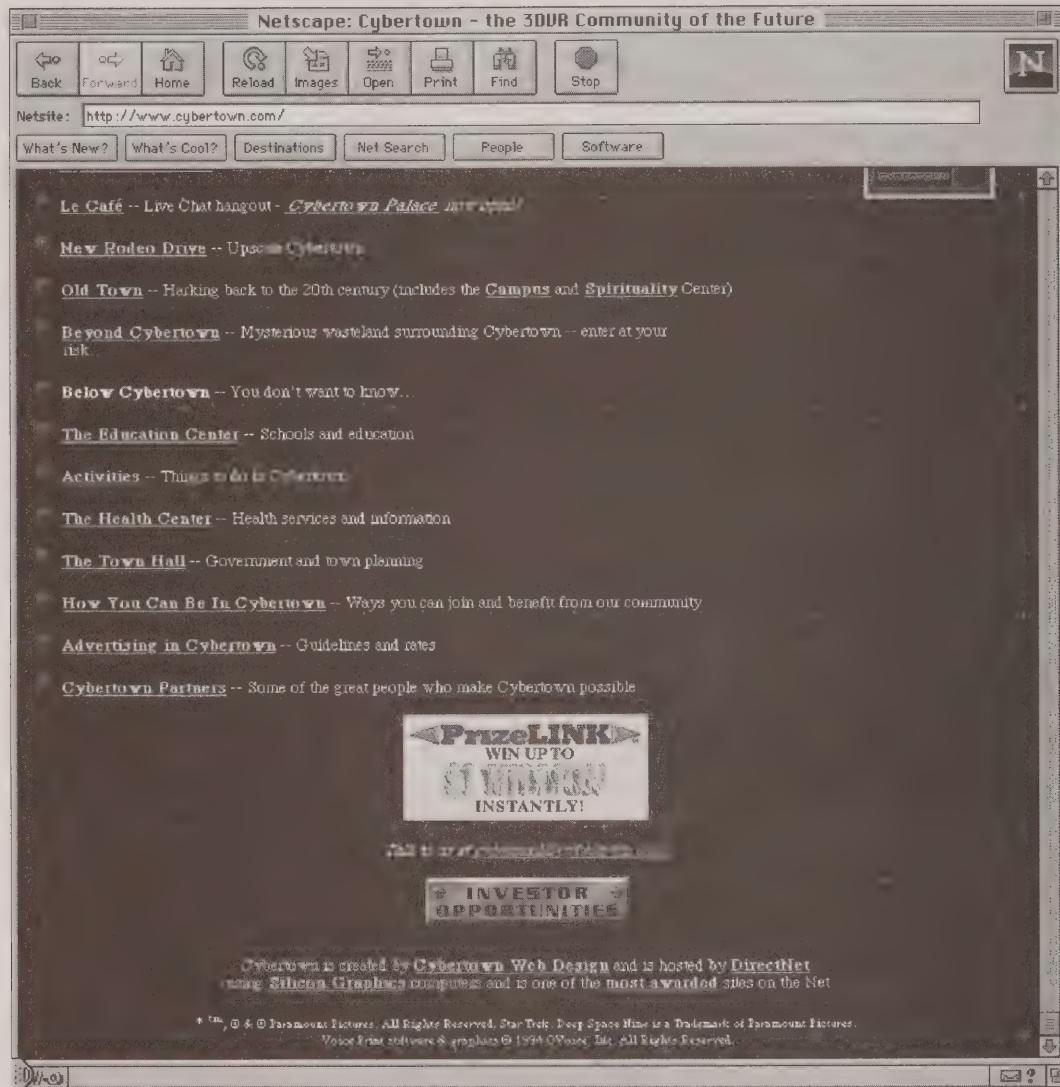


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purchases are delivered to your door (often overnight if desired), and purchases can be made with an 0800 number phone call and a credit card.

How can electronic commerce compete with the catalogue? One way is product pricing. Most consumers are looking for the lowest price, as demonstrated by the popularity of Target, Wal-Mart, K-Mart and the warehouse clubs.

Cybertown - the 3DVR Community of the Future (*continues on next page*).

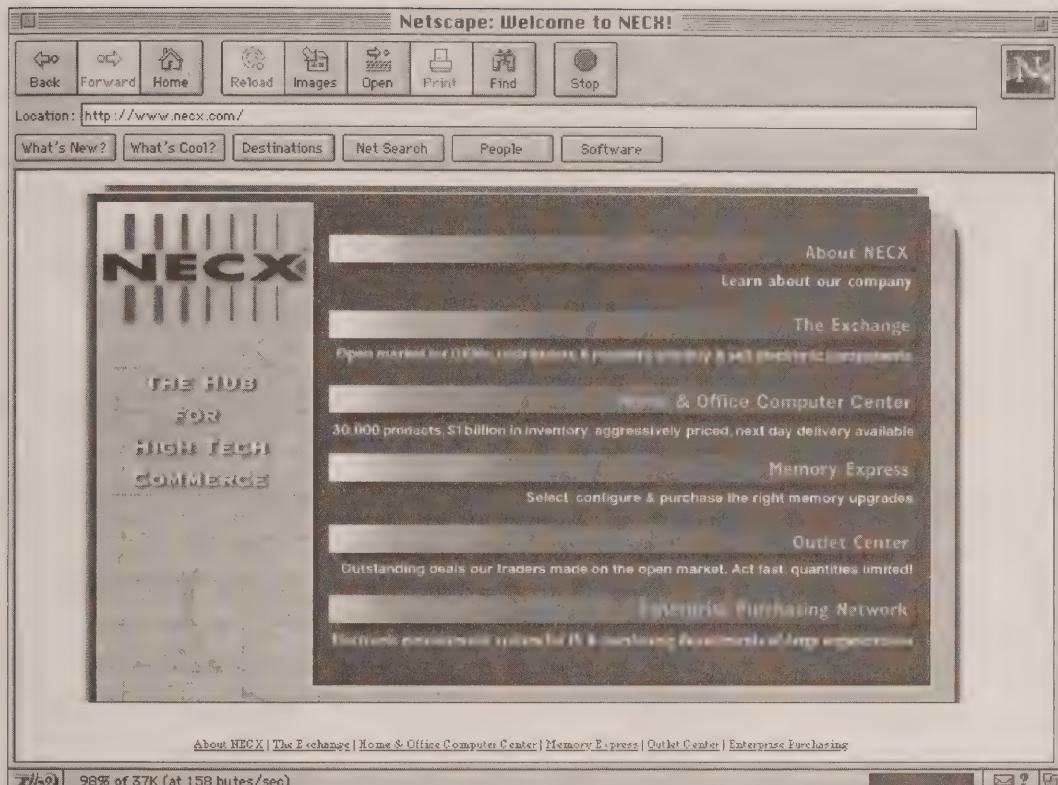


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Cybertown – the
3DVR Community of
the Future (*continued*
from previous page).

Tip #3

Price your products competitively. Try to factor in merchant savings from marketing the product on the Internet and pass part of that savings along to the customer. If possible, price them lower than similar products purchased through conventional means. Emphasise the Internet Discount aspect of your price on your Web pages and store listings.



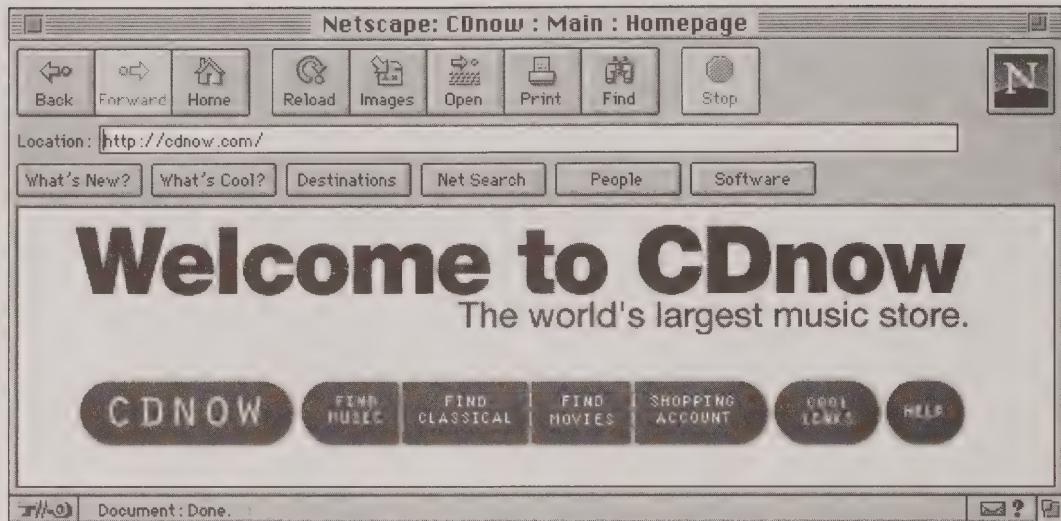
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Tip #4

State the product price on the first Web page that has the product. Some Web page designs have the shopper browsing through a list of products, then a thumbnail picture, then an enlarged picture with details, and finally require bringing up the order form to find out what the price is. This is a real time waster for the shopper.

In order for the shopper to efficiently find those items with low Internet pricing and be able to comparison shop, a way to view similar products in different stores is required. Product search capability is the answer for the busy, price-conscious shopper! This is where electronic commerce really has the edge over conventional malls and catalogues. Imagine: winter is coming and you've really got to get a surge suppresser for your computer before one of those lightning strikes takes down your system. You log on to your computer, bring up an Internet-wide on-line shopping search function (coming soon to The Shopper),

Welcome to NECX!



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CDnow Main
Homepage (*continues
on following pages*).

and type in Surge Supresser. A formatted list appears, with several different manufacturers and models, high level specifications, price, and direct links to each product's Web page. You review the detailed specifications on three different models (in three different malls!), make your decision, and soon your computer is protected against the whims of Mother Nature and the Electric Company.

Tip #5

Add a product search function to your mall or store. Examples of sites with cutting-edge search technology can be found at NECX Direct (<http://www.necx.com>), CD-Now! The Internet Music Store (<http://cdnow.com>), and IMALL (<http://www.imall.com>).

Tip #6

If a site search function is not currently feasible, at least offer a category table or list. Innovative and well-organised product lists can be found at Jellybean Group and Uncommon Connections. Jellybean (<http://www.jellybean.com>) has a quickscan product listing of each store which gives a text-only high-level listing of items and prices, with an option to view details and picture. Uncommon Connections (<http://vtgnc.com/uncommon>) has an extremely detailed product index table where you can see all products and designs at a glance.

Back Forward Home

Reload Images Open Print Find

Stop



Location: <http://cdnow.com/cgi-bin/mserver/SID=637821857/pagename=/RP/CDN/mainmenu.html>

[What's New?](#) [What's Cool?](#) [Destinations](#) [Net Search](#) [People](#) [Software](#)

Weekly Specials

Search Over 250,000 Items

[On Sale](#)
[Top 20 Albums](#)
[New Releases](#)

CDnow FastFind

Artist

Alphabetically

[Find It](#)

Advance Orders

Order Before Release Date

[This Week's Features](#)
[Full Listing](#)

Contests

[Ultimate U2 Contest](#)
[Round Two](#)

Buyers' Guides

JAZZ ONLINE
[Jazz Buyers Guide](#)
[Featuring JOL](#)

SONICNET
[Alternative Buyers Guide](#)
[Featuring SonicNet](#)

Lexicon
[Browse Everything at](#)
[CDnow in the Lexicon](#)

Gift Certificates

Great for Birthdays!
[Buy Gift Certificates](#)
[Redeem Gift Certificates](#)

CDNOW MOVIES

All your favorite Comedies, Dramas, Action Films and more.
Choose from over 35,000 in stock.



[Das Boot \(dir. cut\)](#)



[Kingpin](#)



[Moll Flanders](#)

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Many unusual gifts and artworks can be found on the Internet. However, some sites try to sell jewellery, gifts, household furnishings and decor, and other attractive items through textual description alone.

CDnow Main
Homepage (continues
on following page).

Netscape: CDnow : Main : Homepage

Back Forward Home Reload Images Open Print Find Stop

Location: <http://cdnow.com/cgi-bin/mserver?SID=637821857/pagename=/RP/CDN/mainmenu.html>

What's New? What's Cool? Destinations Net Search People Software

DESTINATIONS

[Interjuke](#)
Listen to Entire
Albums while
You Shop

[UBL](#)
Internet Music
Resources

[MusicNews](#)
Read about Your
Favorite Artists

[Magazine
Warehouse](#)
Lowest Prices
Guaranteed

[Cosmic Credit](#)
Have a Website?
Earn Free CDs

CDnow FastFind

[FEEDBACK](#) [POLICIES](#) [TEXT MODE](#) [GRAPHICS MODE](#)

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CDnow Main
Homepage
(continued from
previous page).

Tip #7

Include a quality picture of each product, unless the product is one of 'function' only (electronics, computer, automotive and other hardware may not require a picture; while gifts, household furnishings, clothing, and jewellery will not appeal to the consumer without a picture).

Time is money, and shoppers are looking to save time by shopping the Internet.

Tip #8

Your home page should make a good first impression, or the shopper may not browse your site. Think speed. Ideally, your home page should load in 15 seconds or less. Keep large graphics, product pictures, or (for malls) multiple store logos off the first page. Instead, have a couple of small attractive graphics and clearly describe what your site offers with high-level paragraphs and text links to separate pages. On your secondary pages have small sets of thumbnail pictures (or even one



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thumbnail with detailed description per page for fastest navigation). Provide an option to click on the thumbnail to enlarge for closer viewing.

For fast navigation, your site also has to be visually easy to read. Textured backgrounds, large clickable image maps, and wild colour combinations will demonstrate creativity, but is that what your site is really about?

Tip #9

Go for speed and clarity first, then creativity. Make sure your photos and graphics stand out well against the background. Textured backgrounds may sometimes detract from the product photographs. Text colour versus background colour is another important factor (some

iMall Homepage.

sites when viewed with images off, wind up with black text on a black background!). Light-coloured text is often especially difficult to read. Take the time to make the text on graphics and icon buttons clear and legible (even in 16-colour VGA mode).

Tip #10

More on the 'Time is Money' theme. Give the shopper a text-only option, don't make your customer run with images on every page (or any page for that matter). Remember the studies on left brain/right brain differences? Shoppers that are stimulated by colours and pictures will run with images on for the full experience. The rest of us unimaginative types that focus on the words and text prefer to zip through sites while scanning the words. View your site with images off to see if it's still easy to navigate.

To sum: make your site fast, easy, simple, with competitively priced products, and provide the shopper with a search capability for a truly enjoyable and efficient on-line shopping experience. Your sales will rise as a result!

The business case

Before starting work on your Internet marketing project you should construct a business case. This will use the information you have obtained from the market research and the reaction from your customers. It is a good approach to look carefully at the market you are intending to serve and the products you are offering. Start with a few good customers and use them as proof of concept. You may need to set up and tune a lot of manual procedures to ensure that you are able to handle the orders. It is a lot easier to do this with a few customers who know you and are prepared to involve themselves in your 'experiment' and who will be tolerant with your 'teething' problems, than it would be with a large number of new customers who are expecting a high level of customer service right from the start.

What you are looking for is some level of guarantee that you will be able to obtain and sustain a reasonable level of business turnover. If you can't get this - don't proceed!

CHAPTER 14

If We Build It Will They Come?

HERE IS STILL A GREAT deal of debate about doing business on the Internet. Is the Net suitable for electronic commerce? Are people actually buying on the Net? How will they find my site? How do I know that I won't be wasting my time and money? These are totally valid questions and ones which must be answered to the complete satisfaction of anyone contemplating making an investment decision on Internet trading. This chapter answers some of the questions you will have and helps you come to grips with others. At the end of the day, though, it is really up to you. The best marketing platform in the world won't save a business from bad product decisions, poor marketing and unreasonable expectations.

A new way of doing things

The concept of doing business electronically is not a new one - we have been using it in one form or another virtually since the telephone was invented. Indeed, the concept of purchasing merchandise at a distance - by mail order - pre-dates the telephone by many years. We are also very comfortable with the concept of remote payment for goods and services by credit card and the fact that our wealth is now measured in microscopic dots of magnetism on a computer disk somewhere (though perhaps fewer are so comfortable with this particular concept).

Drivers

For the world to move substantially towards a new way of doing things, there must be a number of fundamental drivers in place. Some of these might be defined as:

1. Available technology - a practical, economical means of delivering the new service.

Available Technology



Familiar Environment



Solution



Bonus Advantage

2. A familiar environment – the new service utilises concepts already readily accepted by the public.
3. The provision of a solution to a problem or inconvenience – the public clearly sees that the new service solves a problem for them.
4. A ‘bonus’ advantage – the new service provides the public with some tangible benefit they were not previously able to achieve.

The presence of three out of four of the above provides a high chance that the new system will catch on. The existence of all four makes it a virtual certainty. When looking, for example, at the replacement of the corner grocery store by the supermarket, one can see all four of the drivers present – available technology in the form of the motor vehicle; solution to a problem in the form of reduction in food prices; familiar environment in the travel to a centre for the supply of food; and finally the ‘bonus’ of a tremendously wide variety of choices able to be made by the shopper in their own time free of supervision.

When we look at whether electronic commerce will ‘catch on’ we see all four drivers strongly represented. Firstly, the technology in the form of the Internet – freely available, easy to use, low-cost networking. Secondly, the familiar environment. We are used to electronic means of doing business – telephones, TV buying, credit cards, EFT-POS and the rest.

Electronic commerce solves a problem for us – that of lack of time. We no longer have to physically present ourselves at the premises of the vendor. We can order over the Internet in a moment or two and save ourselves much time and inconvenience.

Finally, the ‘bonus’ for those of us who hate the problems of parking, the battling with other shoppers and the lack of product choice at whatever establishment we have chosen to deal with – all these are gone. In fact there are two bonuses: it also provides us with much wider choice and we are not restricted to the merchandise that is available locally – we can buy from around the world.

What will it look like?

In fact, considering the above, there seems little reason to prevent electronic trading from becoming a reality. Presuming therefore that it will happen – actually it already has happened, but not as visibly as it will over the next year or two – the question is, just exactly what would be expected from an electronic trading system?



The first requirement is a ubiquitous telecommunications system, the ability for customers and traders to communicate and do business with each other quickly and easily. This network currently exists in the form of the Internet.

Next we need the ability to present product information in a form that meets the needs of both the buyer and the seller. There is no doubt that the World Wide Web provides such a medium.

The third requirement is a means of proactively getting product information to the prospective customer and the various email technologies provide an ideal vehicle for this.

The fourth requirement is a means of getting physical goods to the customer. The recent blossoming of the courier industry has provided the electronic commerce business with a ready-made delivery network. In the future the courier will be king!

How will they find
my site?

Finally there is a need for a financial system which can transfer value from the purchaser to the seller, quickly, easily, securely and economically.

Having identified the component parts of the system, it is now clear that the environment needed to make electronic commerce fully exists. All the parts are there – the human, the physical and the electronic!

Current trends

If the environment is ready it should already be happening – is it? For some reason accurate figures are hard to come by. In January of 1996 AGB McNair released a survey of Internet trading. The survey itself was carried out on the Internet and basically asked respondents if they had made purchases through the Internet and if so to what extent. The definition of 'made a purchase' was that they had originally located the goods or services on the Net, even if they had not completed the transaction there. The results were quite surprising: 42% of New Zealand respondents out of a total survey population of 1200 had made purchases through the Internet at some stage prior to the survey. Of these:

- 12% spent under \$10,000
- 18% spent between \$10,000 and \$50,000
- 30% spent between \$50,000 and \$100,000
- 31% spent over \$100,000

Clearly the survey itself could be said to be biased in that it was carried out on the Web, but on the other hand there is little point in asking people who aren't on the Web if they have made purchases there! The survey was voluntary and self-responding; that is, the respondents themselves found the survey and decided to answer it. Statistically these types of survey are questionable in terms of being able to usefully extrapolate the data as the respondents' motives in contributing make them not truly representative of the total population. However the survey was useful in that it did clearly indicate that electronic trading is going on and at a level which cannot be ignored.

How big will it get?

Overseas there are many claims and predictions as to the potential level of spending on the Internet. I have seen figures quoted as low as \$600 billion per annum by the year 2000 up to \$1800 billion by the same

date. Unfortunately most of these figures have been dredged out of some seminar speaker's imagination and, having been quoted at one seminar are picked up by other speakers and eventually assume a mantle of respectability. It really is hard to produce any sort of accurate figures especially as Internet trading is a young science and people are still trying to figure out how to do it right.

One indicator of the reality of these predictions is the number of key companies who have taken to the Net as a major marketing tool. One of the most notable of these is telecommunications hardware manufacturer Cisco Systems (<http://www.cisco.com>). Cisco, by the first quarter of 1997, were turning over US\$4 million a day from their Web site. The sales figures are not the only impressive statistic, according to Cisco chief information officer Peter Solvik. Internet sales saved the company \$250 million in 1996, cutting their expenses by 14%.

Another significant site is Dell Computer (<http://www.dell.com>). Dell's US Internet site was selling one million dollars worth of computers every day early in 1997. If we add the Internet sales of Dell and Cisco we get close to 2 billion US dollars worth of sales per annum - just from two companies marketing on the Internet. All of a sudden the target of \$600 billion by the year 2000 doesn't seem quite so fantastic.

There are a number of factors which will impact on the potential of the Net as a marketing platform. The first is the ability of the customer to access the product. This means that they must be connected to the Net. It is often said to me that there are not many/enough people connected to warrant the Net being taken seriously as a place to do business. The fact is that the number of people on the Net right now is completely irrelevant; what matters is sustainable growth. Obviously the current exponential growth cannot be sustained, but it doesn't have to be. The growth needs only to be sustained until everyone is on! Any business manager looking at the sort of growth the Net is experiencing and has been for a significant time will feel confident that the medium will provide a stable market platform for their products.

One indicator of growth in accessibility is the number of PCs sold around the world. The following chart shows actual PC sales and the forecasts for the future to the year 2000. I presume that the nice round figure on the year 2000 prediction is some sort of artistic licence!

Netscape: Cisco Connection Online

Back Forward Home Reload Images Open Print Find Stop

Location: <http://www.cisco.com/>

What's New? What's Cool? Destinations Net Search People Software

Cisco Systems

Cisco Connection ONLINE

WHAT'S NEW LOGIN REGISTER NAVIGATE HELP

Cisco Solutions
Service provider, enterprise, small/medium business, small/home office, SNA, government, education.

Corporate News & Information
Employment, acquisitions, contacts, news releases, newsletters, and investor relations.

Products & Ordering
Complete product information, how to order, and online ordering in Cisco MarketPlace.

Service & Support
Software, technical assistance tools, Commerce Agents, Networked Commerce, customer services, and documentation.

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Headlines

Cisco-Powered Network
Authorized Service Providers that display this Cisco logo provide reliable, secure, and innovative data services.

Windows NT Firewall
Cisco to acquire Global Internet Software Group and its Centri Security Manager Windows NT security firewall.

Ardent Acquisition
Pioneer in designing combined communications support for compressed voice, LAN, data and video traffic.

MORE ►

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Cisco Connection
Online.

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BUILD YOUR OWN COMPUTER. ONLINE.

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Online Store →



Service and Support →



Order Status →



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POWEREDGE SERVERS

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DELLWARE

Buy software, peripherals, and networking products online.



FIND

HOME

ONLINE STORE

SERVICE & SUPPORT



91% of 19K (at 227 bytes/sec)

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Welcome to
www.dell.com
(continues on next
page).

Netscape: Welcome to www.dell.com

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Location: <http://www.dell.com/>

What's New? What's Cool? Destinations Net Search People Software

New Dell Dimension XPS M233s \$2,499

This site has been optimized for browser versions 3.0 and above.
[For compatibility and troubleshooting](#)

• 233-MHz Pentium® Processor with MMX™ Technology
• 32MB SDRAM Memory
• 3.2GB Hard Drive (12 ms)
• 17LS Monitor (15.9" v.i.s.)
• Matrox Millennium 4MB WRAM Video Card

Microsoft Internet Explorer

Powered by Microsoft BackOffice

Business Software Alliance

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Welcome to
www.dell.com
(continued from
previous page).

Worldwide PC Sales	
Year	Millions
1991	30
1992	32
1993	41
1994	43
1995	55
1996	62
1997	75
1998	85
1999	90
2000	100

The figures on the above chart provide some indicator of the size of the potential market. All the machines sold after about 1993 will be Web capable and virtually all sold after 1995 will have modems on board as a standard item.

From New Zealand's point of view, figures released by the Ministry of Commerce in March 1997 show that one in four homes now has a mains-operated computer. In addition the number of Internet hosts - that is computers with their own Internet address, directly and permanently connected to the Internet - had grown to over 84,500. Internet hosts are an indication of the number of Internet users and a figure of four users per host is a reasonable guide. There are therefore around 300,000 New Zealanders with access to the Internet.

The next factor is the demographics of the users of the technology. Currently these are in the age group 25 to 45 years and with an average income of around NZ\$40,000. This trend is quite likely to continue for some time but with the demographic beginning to spread outwards in both directions. The figures are mostly gained from surveys on the Net itself and from sales statistics. In actual fact the number of people using the Internet is extremely difficult to predict. The increasing popularity of notebook computers is having an impact on the number of Internet users. If you stand and watch the early morning 'off to work' crowd leaving a bus terminal or train station you will notice that the proportion of those with PC carry-bags vastly outweighs those carrying traditional briefcases (many of which contain the new slimline notebooks anyway). This phenomenon is creating a whole 'ghost' population on the Net. When the notebook arrives home at night it is pounced upon by partners and children who use the Internet to help

with homework assignments, contact friends and relatives overseas and for a whole range of other activities. This 'invisible' Net population must swell the official figures and provide an even greater market base, especially once supermarket shopping sets in. This has kicked off in a big way with the launch of the Woolworths supermarket in Auckland.

Prudent reality

It is one thing to speculate about the directions the Net is taking and quite another to make sound business decisions based on such speculation. Clearly the prudent marketing manager will be concentrating on products which are in demand by that segment of the marketplace with proven Internet user demographics. While this does not exclude children's products as these are often purchased by parents, it probably makes those products used primarily by the younger age group a less sound proposition at this point in time.

On the other hand the Internet is not just a giant billboard and the successful way to use the Net for electronic commerce is to focus on individual customers. This provides you with a much higher chance of success and also allows you to tailor the products and services to the customers' needs.

CHAPTER 15

Payment Systems

HERE SEEMS LITTLE point in talking about doing business on the Net unless we have some way of getting the money in! This is always an issue with any sort of trading system, whether it be electronic or otherwise. If your product is delivered over the Net, often you do not know the physical location of your customer - or at least you may not be able to verify the address they give you. There have been and still are being developed a number of solutions to this difficulty and this chapter will be talking about some of those approaches, ranging from extremely low-technology solutions through to very complex and sophisticated systems.

Effectiveness

Clearly for a payment collection system to be effective it must have a number of fundamental qualities:

Transport Medium: Payments must be able to be made over the same medium as the goods and services are being transacted, ie over the Internet.

Security: There must be some means of ensuring that the financial transaction is secure and does not place either the purchaser or the vendor at risk - either during or after the transaction.

Immediacy: It must be possible for the vendor to obtain early transfer of value.

Economy: The payment system must be economical to use - even for small-value transactions.

To date the system most used on the Internet has been payment by credit card. Credit cards, however, do not meet all of the requirements shown above. While it is possible to obtain the required level of security, not all sites provide this. In general, the vendor does not get immediate access to the value until the credit card company pays out

Transportable
over the
Internet



Secure



Immediate



Economic

at the end of the trading month. Finally, credit cards are relatively expensive as a means of money transfer, especially for small transactions of, say, 50c or \$1.

Simple security

One method employed by a number of traders uses the postal service, sometimes referred to by Internet enthusiasts as 'snail mail'. In this approach, if you want to become a customer of, say, an Internet bookshop, you post them your credit card details and the postal address to which the books you order will be sent. The bookstore stores the credit card details and your physical address in a secure offline database. They will not send the books to any other address unless they receive a piece of paper with a change bearing your signature. When you order books the bookstore accesses your details from their database and completes the transaction. If someone pretends to be you and orders some books, they will be sent to you and you can send them back!

The First Virtual organisation have a variation on that theme. First Virtual operate a payments 'gateway' for a number of businesses trading on the Web. You provide them with your credit card details in a similar manner to the above. When you make a purchase from a First Virtual associated company by email you will get an immediate response from First Virtual along the lines of 'Hey, we have just received an order for 400 little blue widgets - did that come from you?' Your emailed response would normally be 'yes', in which case First Virtual will complete the financial transaction and pass your order on to the supplier.

Clearly the above systems are effective and economical but the time-frames involved in setting them up don't lend themselves to impulse buying by someone who is not already a customer but is in urgent need of your product or service.

A modification of the above systems to deal with the immediacy problem is used by some companies. In this approach you are provided with an 0800 number to call the company offering the goods or services. When you do so you are connected to an interactive voice response system (IVR) - a computer. The IVR system asks you to enter details of your credit card through the telephone keypad and this is then stored in an offline database. The system then tells you a PIN which you use over the Internet to make purchases from that company. Certainly the PIN number can be intercepted but should this happen

the thief can only make purchases from that particular business and they will have a record of where they sent the goods.

Secure credit card transactions

Much work is going on to allow secure credit card transactions to be made over the Internet. You will note that the Internet browsers have a small key in the bottom left-hand corner. Normally this key is in two pieces, it is broken at the shaft. This indicates that the transactions currently being undertaken are not secure and may be intercepted and read by unauthorised persons. When secure software is being used the key will be displayed whole. Of the secure transaction initiatives there are two which should be considered by a business wishing to conduct commerce on the Net.

Encryption

Encryption allows private conversations over the public Internet. Using a commerce server, you are able to have a browser obtain information from a Web site in completely encrypted form. Even someone who might tap the wire between the machines is unable to understand the communication.

The same is true for data typed into a Web form such as credit card numbers, secret codes, personal information, or sensitive corporate information. This data is protected using strong encryption technologies.

Integrity

Commerce servers essentially guarantee that the data sent between the browser and server is unaltered during transmission. They would detect both transmission errors due to noisy communication lines and malicious modifications possibly made by someone between the two computers involved in the transaction.

Authentication

A commerce server gives the visitors to your site confidence that they have reached your site and not someone else's site trying to impersonate your own. If someone were to make a purchase from you through your Web page, that person can be confident that they are giving a known company their credit card number and not an imposter.

Nonrepudiation

Nonrepudiation is the term used to describe the provision of acceptable proof of an Internet transaction. Commerce server systems provides proof to your customer that a document that was obtained from your Web site was sent by you to their browser. For instance, this would allow you to provide a receipt for an online purchase, including the date of sale, promised delivery date, and price. The shopper can have confidence in this receipt because he or she can prove that your Web site knew of its contents before sending it.

The Microsoft/Visa solution

Microsoft and Visa have been working on a joint venture to establish a standard for secure business transactions. Known as Secure Transaction Technology (STT) it does, however, have a rival standard. Microsoft's intimations that it will charge companies developing secure software products a licence fee to use STT have resulted in another alliance of Mastercard, IBM, Netscape, GTE Corp and CyberCash who have created a competing 'standard' known as Secure Electronic Payment Protocol (SEPP). The concept of SEPP is that it will be given away freely to any organisation wanting to use it. It sounds like the VHS/BETA fight all over again!

All of the above approaches, however, concentrate solely on the security of Internet transmissions. But they are still credit card transactions and the problem of the cost of small-value purchases still exists.

Electronic cash

One solution to the problem may well be a completely new, all-electronic currency called Ecash or Electronic Cash. Ecash exists only in cyberspace - on the Internet, although there are banks now who are prepared to allow their customers to write cheques on their ecash accounts. The Wells Fargo bank was the first of these and has now been followed by others.

While there are quite a number of ecash systems springing up around the world, one of the most popular seems to be DigiCash.



The way DigiCash operates is explained below: For some reason I have been unable to fathom, the electronic banking industry when describing how systems

work always use two electronic banking customers, Bob and Alice. Never one to buck tradition I have followed the protocol.

Overview

Ecash has been designed to be easy to use. Consumers are given a simple 'point-and-click' graphical user interface that is simpler to use than many bank ATMs. To demonstrate how easy it is to use ecash, various transactions involving our two ecash account-holders, Alice and Bob, are explained below.

Startup and background operation

Once Alice starts her ecash program, it runs on her PC in the background, much like a memory monitor or clock program. While ecash is running, a small window is displayed that shows her the amount of ecash coins which are stored on her hard disk and are available to be spent. The optional toolbar allows her to access various functions.

Withdrawing ecash from the account

In order to use ecash to purchase goods or services, ecash must first be available on Alice's hard drive, in the same way that cash is needed in your wallet before you can pay for goods or services in the physical world. Withdrawing ecash is as simple as withdrawing regular cash from an ATM.

A dialogue box used to withdraw ecash appears when the Mint icon has been clicked on the toolbar. Alice simply enters the amount to be withdrawn from her account and clicks the 'OK' button. This amount of ecash is then downloaded from her ecash account at the Mint to her hard disk.

Making a payment

There are two ways to spend ecash. Alice can decide to send a payment herself, or she can answer a request for payment.

Responding to a payment request

Bob has sent a payment request to Alice because she has asked to buy something from him. (The merchant's Purse software will generate and send such requests.) For example, in the dialogue box, Alice might be asked to make a payment of \$0.02 to participate in a game. If she agrees to make the payment, she just clicks on the 'Yes' button. Similarly, clicking the 'No' button will refuse the payment.

According to her preferences, Alice may also instruct her system to respond automatically to similar payment requests in the future. When the 'Policy' button is clicked, the dialogue box is extended downwards. Alice can now set the policy under which payment requests are to be answered automatically. These extra settings can be used to simplify certain repetitive payments.

Initiating a payment

To make an unsolicited payment directly, Alice brings up the payment dialogue box from the toolbar and fills in the blanks, much like writing a personal cheque.

Receiving ecash

When Alice has sent ecash to Bob, he may want to deposit it in his ecash account or have ecash coins returned to his hard drive for future use.

Just as Alice could set a policy for payment requests, Bob can also set a simple policy which automatically accepts subsequent incoming payments.

Depositing ecash in a mint account

Ecash can, of course, be deposited in the user's ecash account. Again a simple dialogue box is used. (Actually this is done with the same box used for withdrawals.)

Receipts and records

Ecash tracks withdrawals, payments, receipts, and deposits, and can provide Alice with various statements of her account.

Cancel payment

If the merchant has not deposited the payment yet (ie the status is not marked 'OK' in the payment log), then it is still possible to cancel the payment by clicking on the 'Cancel Payment' button.

Recovery

If the purse-holder's computer crashes and stored ecash coins are lost (along with records of recent transactions), then execution of the recovery procedure (using the special Recovery key), will restore the account to its correct state using the Mint's records from the Transaction Log.

How ecash works inside

Overview

Like banknotes, ecash can be withdrawn from and deposited to transaction demand deposit accounts. And like banknotes, one person can transfer possession of a given amount of ecash to another person. But unlike cash, when a customer pays another customer an electronic bank will play an unobtrusive but essential role.

To show how it all works the following will explain how a withdrawal operates, then follow the ecash in a payment to a merchant. Combining these two transactions, we can then understand why the customer perceives that ecash is paid from person to person without involving any bank. Finally the withdrawal is explained in greater detail to illustrate the 'blind signature' concept, which is the foundation of the privacy feature, and explain why the bank cannot trace its own money!

Simple withdrawal of ecash

Consider two participants in the withdrawal transaction: the bank and customer, Alice. The digital coins that have been withdrawn from Alice's account at the bank are on their way to her PC. When they arrive, they will be stored along with some coins she already has on her hard disk.

No physical coins are involved in the actual system of course, but the messages include strings of digits, and each string corresponds to a different digital coin. Each coin has a denomination, or value, so that a purse of digital coins is managed automatically by Alice's ecash software. It decides which denominations to withdraw and which to spend in particular payments. (The ecash software keeps plenty of 'small change', but will prompt the user to contact the bank in the rare event that more change is needed before the next payment, to re-structure its purse of coin denominations.)

An ecash purchase

Now that Alice has some ecash on her hard drive, she can buy things from Bob's shop.

Having received a payment request from Bob, she agrees by ticking the 'Yes' box. Her ecash software chooses coins with the desired total value from the purse on her hard disk. Then it removes these coins and sends them over the network to Bob's shop. When it receives the coins, Bob's software automatically sends them on to the bank and waits for acceptance before sending the goods to Alice along with a receipt.

To ensure that each coin is used only once, the bank records the

serial number of each coin in its spent coin database. If the coin serial number is already recorded, the bank has detected someone trying to spend the coin more than once and informs Bob that it is a worthless copy. If, as will be the usual case, no such serial number has been recorded, the bank stores it at that position and informs Bob that the coin is valid and the deposit is accepted.

Person-to-person cash

When a consumer receives a payment, the process could be the same. But some people may prefer that when they receive money, it be made available on their hard disk immediately, ready for spending; just like when someone hands them a five-dollar bill. This user preference can be realised by the procedure outlined below.

The only difference between this payment from Alice to another consumer, Cindy, and the one Alice paid to Bob's shop is in what happens after the bank accepts the cash. In this example Cindy has configured her software to request the bank to withdraw the ecash she has just deposited and send it back to her PC as soon as the coins are accepted. (Actually Cindy's bank will check with Alice's bank to make sure that the coins deposited are good.) Now when Alice sends Cindy five dollars, new coins are immediately available to spend from Cindy's PC.

How privacy is protected

In a simple withdrawal, the bank creates unique blank digital coins, validates them with its special digital stamp, and supplies them to Alice. This would normally allow the bank (at least in principle) to recognise the particular coins when they are later accepted in a payment. Also this would tell the bank exactly which payments were made by Alice.

By using 'blind signatures', a feature unique to ecash, the bank can be prevented from recognising the coins as having come from a particular account. Instead of the bank creating a blank coin, Alice's computer creates the coin itself at random. Then it hides the coin in a special digital envelope and sends it off to the bank. The bank withdraws one dollar from Alice's account and makes its special 'worth-one-dollar' digital validation like an embossed stamp on the envelope before returning it to Alice's computer.

Like an emboss, the blind signature mechanism lets the validating signature be applied through the envelope. When Alice's computer removes the envelope, it has obtained a coin of its own choice,

validated by the bank's stamp. When she spends the coin, the bank must honour it and accept it as a valid payment because of the stamp. But because the bank is unable to recognise the coin, since it was hidden in the envelope when it was stamped, the bank cannot tell who made the payment. The bank which signed can verify that it made the signature, but it cannot link it back to a particular object or owner.

How it all works with numbers

When Alice's computer creates a blank coin it chooses a random number. The bank's validating stamp on the coin is a public key digital signature encoded by the bank with the random coin number serving as the message to be coded. Checking the validity of a coin involves the verification of the digital signature using the bank's corresponding public key. The blinding operation is a special kind of encryption designed so that it can only be removed by the party who placed it there. It can be reversed using the public key digital signature process, and can thus be removed without disturbing the signature.

How funds flow

Although ecash works just like cash in the hands of a consumer, for a bank its properties are somewhat different.

The first step in each case occurs when value comes out of a customer's account. In an ATM transaction, the cash given to the consumer constitutes a reduction in vault cash. In an ecash withdrawal, however, the value is moved within the bank and becomes an ecash liability that will be reversed when the ecash is presented for deposit.

The second step is the spending of the value, where cash and ecash are very similar. In each case the merchant (or other party receiving it) can choose to be issued with new cash coins or can make a deposit to an ecash account.

When the merchant takes the final step and deposits the traditional cash, it constitutes an increase in vault cash, whereas deposit of ecash reduces the ecash liability and increases deposit liability.

There are differences in the actual transaction path for a 'hard cash' payment and a digital cash payment.

While the main difference is invisible to the consumer, it is vitally necessary to protect the integrity of ecash. When a digital coin is received as payment it must be surrendered to the bank who will exchange it for an account credit or for freshly minted ecash.

Take the example of a cash payment from Customer X, who has

withdrawn cash from the bank to pay Customer Y. The payment goes directly from X to Y's wallet, and at some later time Y has the option of either depositing the cash in the bank or using the same coins to pay Customer Z. This process can continue indefinitely with the cash retaining its value as it passes from hand to hand. There is no essential need to deposit it at the bank.

The process is different in the case of an ecash payment from X to Y. Before the payment is accepted, Y verifies the validity of the ecash by sending it (online) to the issuing bank (the main step which is not necessary with traditional cash). Once the coins are checked by the mint, Customer Y chooses whether to request new ecash coins of equivalent value (which can be stored on the hard disk and sent to a third party as payment) or to have the ecash deposited as a credit to their ecash account.

Summary

As can be seen from the above outline, ecash systems have, in the main, been well thought out. From a purely mechanical point of view the systems will provide a simple-to-use, effective and secure form of currency.

Such mechanical effectiveness does not however mean that ecash will catch on. What will do the trick will be the perception of the prospective users who will need to see that ecash is easy for them to use personally, that for orders of magnitude it is better than using their credit cards for Internet purchases and that it is a safe and secure means of acquiring, storing and spending value.

On their part, banks must be feeling anxious at the appearance of a currency which does not require the trappings of banking as we have known it for several centuries. Where will they sit in the scheme of things if 'ebanks' do not require branches, ATMs, cheques and the like, and if virtually anyone can set up in business as an 'ebanker' (or can they?).

The other player in the ecash business is the government. How will governments keep track of earnings if much of it disappears into cyberspace - and reappears who knows where? And in what form? How will they assess income tax - to say nothing of GST? And how will they watch the money flow as they do now via the Reserve Bank?

The jury is still out on ecash. Will it take over from other methods of payment?

Watch this space!

CHAPTER 16

Information Quality

THE WORD 'QUALITY' is used so much today that it has almost become trite. It is quite distressing that the currency of such an important word has become so debased. Quality is especially important in the development of an Internet site as there is so much competition. Viewers are becoming extremely discerning and demand that sites they enter maintain a high level of accuracy and readability – otherwise they will not return. Even though your particular business may not have heavy competition in your business area on the Net, the attitude of your potential customers will be that the quality of your site will represent the level of service they will get from your organisation.

Relevance

Irrelevant information or graphics appearing on your pages will serve to confuse visitors and they will lose confidence. If you have followed the 'Twelve steps to a successful Web site' in Chapter 7 you will have a clear vision and a set of explicit goals to follow for the content of your pages. All material you contemplate putting into your site must comply with these.



One New Zealand site – a very large producer board – has in its main directory a link entitled 'Steiner's View of the Internet'. When followed this presents you with that famous cartoon 'on the Internet no one knows you are a dog'. What has that got to do with international marketing of primary produce you ask – absolutely nothing! The designers of that site merely lost sight of the objectives – if they had any in the first place. A viewer picking up that page could be excused for thinking that they had accidentally selected a link which had sent them to a new site.

Relevance



Information Structure



Suitable Graphics



Accuracy



Maintenance



Audit

At any stage of a journey through a Web site a visitor must be able to feel confident that they understand why the site is there and what it is that the business is trying to tell them. They should also be confident that they are on the path to the specific information they are after. Once that confidence wanes then the customer is lost, much the same as a customer in a cluttered shop with merchandise badly presented will turn and walk out the door. A good test of your Web site's relevance is to get someone who has never visited your pages before to access them and tell you what it is that you are trying to sell them.

Information structures

I often tell attendees at my seminars 'never let a computer programmer design your Web page structure'. Programmers think in 'tree' structures because that's the way that computers like to do things. Computers are comfortable with a series of decisions and branches and it is a good way for programmers to keep track of things. People, on the other hand, like to get straight to the point. They are not happy with following a prolonged series of simplistic steps to get to an objective they can already see clearly.



One site we designed called for a set of options repeated for several regions within the country. We decided that for the sake of speed of access we would repeat the options within the regions on a single map of the country, all on one page. This way the visitor is able to get the information they require in only two 'clicks'. We were taken to task by a programmer in the organisation who considered that our design was badly thought out. He felt that we should have presented the map with just the regions first, then let the visitor make a selection from the options – adding another whole step and a wait while a useless page downloaded!

When looking at site structures it is essential to think from the customer's point of view. Many Web sites are designed for the designer and not for the potential customer. If you are trying to decide on a Web design company from a number of contenders, visit several of each of their sites from the point of view of a customer wanting to buy a product. Ignore the fancy graphics, just see if the site makes you inclined

to order the owner's goods or services. How does the site make you feel about the organisation you are dealing with? Do they come across as efficient and responsive? Would you buy a used car from them?

Graphics

The quality concept does not only apply to the data you carry on your Web pages but also to the graphics which 'adorn' them. Quality in graphics on the Web is a difficult issue. Many organisations use advertising and PR companies to develop their corporate graphics. Most of these companies traditionally use Apple systems for graphics development. Although the computer industry has made great strides in recent years with the compatibility issue, it has not done so well in the area of graphics. You may well find that transferring your corporate image from the Apple systems on which they were developed to the IBM-based systems most Web designers use will prove difficult, if not impossible. For that reason many Web designers resort to scanning the graphics into Web pages.

The encoding formats used by the Web programmers is important. Different formats such as JPEG (Joint Photographic Experts Group), GIF (Graphics Interchange Format) and Bit Map all use differing amounts of storage and provide different levels of quality. In these days of low bandwidth the primary concern of a business site is the time it takes for Web pages to load. This tends to mean that designers go for the format which requires the least data bits. Another technique is to reduce the quality of the picture itself by using fewer colours and 'fuzzing' the image slightly by dulling the tones. This can work well if you want a complex background that you wish to have as a single picture rather than a image which is 'tiled' and repeated many times across the screen by the browser program on the viewer's PC.

All of the above have an impact on the quality of the picture your customers will see on their screens. Generally scanned graphics will not be of the quality of the original. On the other hand your customers will be using an almost infinite variety of computer monitors with which to view your Web pages. The quality of these monitors does vary enormously and the most superb bit mapped image may well look washed out and fuzzy on a low-cost, poor-quality monitor or notebook screen running at a 16-colour setting. Different browsers also will sometimes impact on how images are displayed as will reception in different countries.

As well as actual picture quality, colours vary from monitor to monitor - and can be influenced by the way an individual user has set their monitor brightness and contrast. While this is not normally a major issue, it does become a serious problem for some businesses, especially the garment industry. Where you are selling clothing to people who are not actually able to see the physical product itself, accuracy of colour representation becomes a major problem. These businesses go to great lengths to ensure that printed brochures accurately portray the colours of their products. Sadly the current state of colour monitor technology will not allow the same level of ubiquitous colour accuracy on computer displays. If your company is in the business of selling clothing and you wish to use the Internet to market your wares you will have to find some way of dealing with this problem.

Basically the whole graphics quality thing is a trade-off in download speed versus image quality, with the overriding issue of just how many of your customers will be able to view the images with high-quality screens running on PCs capable of delivering high-density colours.

Don't get carried away with the issue of image quality. Just make sure that the pages load quickly and look reasonably good. The pictures of your products should be good enough that they are accurately represented and prospective customers can see what they are getting.

Accuracy

You can get a lot of information onto a Web site. Don't put any on at all unless you can guarantee its accuracy! It may not be immediately obvious to your customer that the product information or technical advice they have picked up from your Web pages is flawed. When that realisation arrives you both have problems! Your customer has a problem because your technical advice has led to some business failure and he or she is out of pocket and hopping mad, or the product they purchased from you is not suitable for the task you claimed it was. At best your problem is to placate your (ex) customer and refund their money, at worst you will be dealing with a complaint to the Commerce Commission, a consumer association or even litigation. Either way you have lost a customer and the other fourteen people that customer will tell of his or her misfortune! Fixing the problem is not going to bring those people back. Why should they return? They have already proved your site to be of poor quality. There is no way of knowing who they are either, so you can't go to them and tell them you have solved the problem.

Make accuracy your absolute top priority. Even a poorly structured site may bring some benefits but a site with errors will only bring problems.

Maintenance

The one way to ensure that your site is kept up to date is to have a watertight, sustainable maintenance programme. Web site maintenance is a critical part of your Internet business strategy since, if it is successful and is achieving its objectives, your site will require regular, comprehensive maintenance. This means that a specific individual in your organisation must bear the responsibility for keeping the system up to date. Proper maintenance procedures should be automatically triggered by events and supported by documentation. For example each page on the site should have a record of maintenance which has been carried out. The page should be documented in a maintenance system with a suggested maintenance cycle; that is, if the page has not been updated in, say, a two-month period, an investigation is carried out to see why. The documentation should also record who is authorised to request changes and at what level.

Various people in your organisation will be creating or receiving changes to business information on a regular basis. These will affect such things as product pricing, new products or services, contractual changes and the like. You must set up a system to ensure that those changes are automatically and accurately passed through to whoever has the responsibility for ensuring that the Web site maintains a high level of accuracy.

Because Web publishing is immediate, it is ideal for getting regulatory information out to the public as soon as it is promulgated. If your business is in this area you can use the Web site as the definitive source and refer to it in any paper publications which also bear that information (and which will become out of date and unrecallable). This places a burden of accuracy and timeliness on the Web pages. Since they are 'published' in the public arena they are the official latest copy of the regulations in question and must be right up to date.

Audit

The audit function may well be the single most important set of procedures you create with regard to your Internet project. Every Internet

project should be audited at least every two months. Sites which are very dynamic – that is information, mailing lists, server lists or whatever – should be audited more frequently. The audit processes must be comprehensive – one small error throws the credibility of your entire site into doubt – and sustainable. It's no use enthusiastically running the audit checks for the first six months and then letting them slide because you never found anything. The whole idea is not to find anything. Nothing wrong means that your Internet business is operating properly and returning its investment to you.

What does the audit cover? Basically everything! Clearly the process will vary according to the type of business you are operating but the following will be a guide to the sort of audit procedures you might initiate.

Products and services

Each product should be checked to ensure that it is still one that you are offering, its description is accurate, the graphic, if any, matches and the pricing and contractual conditions are accurate. Be aware that the contractual conditions published on your Web pages will be the ones that because they are published will be by law enforced, even if they are not the ones you are actually using. Are all of your products and services up on the Web pages and are they in their correct categories?

Customers

Regularly check your various customer lists for accuracy. Are the new customers being added promptly, old ones deleted? Check that the automatic addition of names to the various subscription servers is working correctly. Do you have a system for letting customers remove themselves from mailing lists and are the procedures being followed?

Structure

Check the structure of the Web site. Is the navigation intuitive? Follow all of the links to ensure that they work and especially follow links to external sites to ensure that they are still live. Web sites move about and often disappear. There is nothing worse than following a link recommended by a site to find that it no longer exists. Your potential customer is annoyed to find themselves on a link to nowhere and will be annoyed at you for sending them there. Is the structure of the Web site the optimum to enable your customers to get to the information they want as quickly as possible? Remember the three-click rule – if you

can't get the information you want in three clicks then the site is badly designed.

The best audit approach is to put yourself in the place of the customer. Be a new customer, unsure of the products and wanting some in-depth details. Then be an experienced customer, knowing what you are after and wanting to place your order as quickly as possible. Were your requirements satisfied?

Search engines

Using a half dozen of the main search engines, search for your site using word sets that someone not knowing of your business but wanting your products might use. Are the engines bringing your site up high enough on their results pages? Are the words in the sample paragraph appealing enough to get a searcher to follow your link? If the answer to these questions is 'no' then you must take action to reload your site on the search engines or perhaps change the wording on your homepage.

Maintenance

Audit the maintenance procedures to ensure that there are no areas which can escape attention. Your businesses may have created some new products or services – perhaps a new department – or moved responsibility for product maintenance to another area of the business. Make sure that the maintenance system has also moved and is being properly activated.

Documentation

The results of the audit must be documented and filed. It is a good idea to prepare a standard audit template to be followed by whoever is carrying out the audit. The results of each test must be fully documented and recommendations for remedial work highlighted. The auditor should be responsible to ensure that such work is carried out and will check these areas at the beginning of each new audit. The regular audit report should be passed to a senior member of the business management team for examination and to be signed off. This will ensure that management have a level of comfort that the site is doing its job!

CHAPTER 17

Getting Connected

IN THIS CHAPTER we will discuss the various ways in which you can connect yourself and your business to the Internet. Many people get very apprehensive about this first step, but it can be a simple process - the trick is to find a good Internet service provider who will hold your hand through these early stages.

Internet service providers

Internet service providers, or ISPs as they are more commonly known, are organisations which will connect you to the Internet. There are a large number of ISPs now offering their services and if you live in a reasonably large city you will find that you have a lot to choose from.

ISPs, in turn, obtain their connectivity from what might be described as wholesale Internet bandwidth distributors. These could be the commercial arm of a university or perhaps a telecommunications company which is bringing a major Internet feed into the country. In New Zealand most of the Internet connectivity arrives in the country via the New Zealand Internet Exchange (NZIX) which is located at Waikato University. The NZIX accepts feeds from outside New Zealand supplied by a wide range of international telecommunications companies and connects them to a variety of New Zealand distributors such as Telecom and Clear. The whole arrangement is totally free market and anyone can supply or receive Internet connectivity through the NZIX.

It is helpful to categorise ISPs into a number of types and having done that you can then decide the type of provider which best suits your needs.

Local providers

In most cities and towns you will find small ISPs which offer connection to the Internet only via a local phone number. The fact that these companies do not offer national free dial-in does not mean that they do not offer access to all of the facilities of the Internet - their services are generally much the same as the national providers.

Just because your business may not be within the local call dialling area of a local provider does not preclude you from using their services. If you are close by, it still might be a cheaper proposition to make a toll call into their area, as opposed for example to having to pay a high surcharge to use an 0800 number to access a national provider.

Many of these small companies provide an 'all you can eat' pricing structure which means that you pay a flat monthly fee for which you get unlimited use, as opposed to other providers which charge by volume or time connected - or both.

Probably the major drawback to using a local provider is business continuance. Many of these small ISPs are operating on restricted budgets and the entry and rapid growth in the marketplace of large ISPs has caused some to fall by the wayside as the larger providers drop their prices. It is worth thinking about the problems your business might face if you do lose your ISP. Those companies which have registered their own domain names (eg, @netedge.co.nz) will have few problems with a change as domains can be moved very easily from one ISP to another without changing your email or Web address. If on the other hand you have not registered your own domain and are using the ISP's (eg, @bestisp.co.nz) then you will have to change your address (eg, to nextbestisp.co.nz). This can cause you major problems as you will have these addresses on all your business stationery - business cards, letterheads, compliments slips, and possibly even on product labels.

National providers

National providers will usually give you a selection of options for dialling in to their service. Generally they allow direct dialling to a local number in the cities and possibly the larger towns. In addition they will provide some easy means of connection for those not within local dialling areas. This is generally by 0800 numbers and will carry a surcharge of close to 100% on the lower rates. For example if you are paying your ISP \$2.50 per hour for local connect the price for 0800 is likely to be in the vicinity of \$5.00 per hour. If you are outside the local call area check the cost of a toll call to the nearest local access as this could still be less than the 0800 surcharge.

If you travel around the country a lot on business you should favour the national provider as you will be able to direct dial into your ISP from most of the cities and towns and still have the 0800 to fall back on if you are outside direct dial areas. You will also save a bundle on avoiding costly hotel phone surcharges.

Generally the national providers are substantial organisations, somewhat more resilient to the ebbs and flows of business finance and possibly (but not always) less of a business risk.

International providers

These companies offer ISP service in many countries. Probably the best known of the international providers is Compuserve which can give you a direct dial in to your email from most of the major cities in the world.

Another option for the world business traveller is the Tymenet service operated by BT in most countries. As with Compuserve, you can dial into Tymenet from most of the world's larger cities (or toll call to them from nearby). Tymenet is not an ISP in itself, it merely runs a carrying service for anyone who wants it. You must make arrangements with your ISP to use the service and you will be charged for the Tymenet connection as well as for the time you use on your ISP account. Tymenet is good value if you do not use an international ISP and it also avoids those horrendous toll surcharges imposed by overseas hotels. Many an unwary traveller has found their eyes watering at their hotel bill after a few days of toll calling back to New Zealand to pick up and send email.

What to look for in an ISP

I am often asked by people attending my seminars, 'Who is the best ISP?' My somewhat tongue-in-cheek response is that the more appropriate question is, 'Who is the least worst ISP?' In all fairness they have a difficult row to hoe. Many ISPs are operating on cashflow and as the customer base increases (and begins to complain how difficult it is to log on) and the ISP is able to accumulate some capital they invest it in more modems - which makes it easier for the customers to log on. When will customers be able to always get connected straight away? That's an easy one - when everyone is connected. Once the whole population is connected then the ISPs can catch up!

To a degree the ease of connection is one criterion but possibly not as important as the ability to be able to talk to a human, as opposed to an answerphone, when you call the helpdesk.

Certainly cost is an issue and we covered some of these aspects in the section above. However the methods by which ISPs charge for their services causes much confusion amongst prospective customers. Most charge some sort of connection fee. This normally ranges from around \$30 to \$150. Even the higher of these amounts is infinitesimal in

comparison to the costs you will incur - and the value you will receive from your Internet connection over a period of five years or so. I would suggest that you do not take this cost into account when making a decision.

Usage may be charged on either time connected or on volume of data accessed. Some people think that you only download data when you specifically request a file to be saved. The fact is that everything you access is data volume. If you go into a Web site those neat graphics and animation or sound bytes are all data volume and will be adding to your bill if you are paying by volume. Some counter these costs by turning off the graphics. While this does save money, in many cases graphics are information and there is a risk that you will miss something important.

Historically, New Zealand ISPs have charged by volume because that was how New Zealand has been charged by international telecommunications carriers for bandwidth across the Pacific. More recently, however, ISPs have been turning to time-based charging. Some of the volume-based providers have added a time-based connection charge which comes into force after the customer has been connected for a certain length of time. This was instituted to counter those customers who logged on in the morning and stayed that way all day. As long as they weren't downloading data, they weren't racking up a charge.

Many providers offer a number of payment plans. These usually involve a minimum charge which will give you a set amount of volume and/or connect time. Once you have exceeded that you are charged for additional usage at so much per hour or megabyte downloaded. In general the higher the minimum charge the better value you will get (lower cost per hour or megabyte) and the lower the additional usage rate. These plans are very similar to those operated by the cellular telephone companies.

It is difficult to recommend one system over another. It depends a lot on the type of use you will make of the service. If you are doing a lot of surfing and reading, or using a lot of email, volume-based charging may be marginally cheaper. If on the other hand you are moving rapidly through sites and saving a lot of data to read offline then time-based systems may be better for you. The problem is that you probably won't know what your usage patterns will be until you get going.

In terms of awareness of the amount you are spending, volume-based systems are definitely the least helpful. Although browsers will tell you how much you are downloading, that information is not particularly

obvious and doesn't impinge greatly on the consciousness. On the other hand it's not too difficult to be aware of the time you have been logged on and you tend to log off when you want to spend some time perusing the material you have downloaded.

If you want to get a good idea of what the current charges are of the various Internet service providers and you know someone who is already on the Internet you can get them to access a NZ Internet Service Providers Guide at <http://www.nzbd.co.nz/internet.html>. This will help you to make a decision and provide you with the contact numbers of the ISPs you might want to talk to further.

Basically the best way to check out an ISP is to ask around and find someone who is using each provider. Find out how satisfied they are with the service - such things as connectability, helpdesk support, mail loss or duplication, etc.

Web hosting

Many ISPs also offer Web hosting facilities. You do not however have to use your ISP to host your Web pages. There are a number of companies who provide Web host facilities only and most of these can offer you list server and subscription server facilities as well. From a business administrative perspective it may be of advantage to use the same organisation for your Web and server services, but you do not have to do so. Geography and distance are generally not issues when it comes to deciding where your Web site should be physically hosted. There are some cost-related issues which should be considered, however.

One thing that is generally not well understood is that operators of Web sites are charged when anyone accesses their site. This charge, when it is imposed (there are some Web hosts who do not impose access costs) is by volume of data downloaded to the enquirer.



The way it works is this: Funtours, a travel company operating out of Pomona, California, accesses the tourist information pages your travel company operates out of a Web host located in Wellington. Funtours will pay their ISP in California for the ten minutes they were connected to the Net to download the information and you will pay your Web host for the .75 megabytes Funtours copied down from your site.

Charges in New Zealand for Web hosting generally involve a flat rate per month for the pages and general operation of the site (currently around \$100, although some hosts charge as little as \$50). Some hosts will provide an unlimited volume of stored pages for this, others will impose an amount per megabyte over the maximum you receive for the minimum charge. The per megabyte charge if applied is usually extremely small, often only a few cents. In addition to the flat rate the volume charges where applied will normally depend on the type and time of access. It is usual to see a structure which charges for national peak and off-peak and international peak and off-peak. International charges are a lot higher than national charges.

Where your site is attracting a lot of interest from overseas you can do a couple of things to keep the access costs down. Web hosting costs are generally much lower in the US than they are in New Zealand and many New Zealand sites are hosted there. A prominent example is Akiko at <http://nz.com> who host a number of New Zealand companies from their site in the United States. The fact that the physical location is in the US makes almost no difference to the time it takes to access the pages from New Zealand and you save the international traffic charges on the accesses from the US.

Another similar approach is a technique called mirroring. When you operate mirrored sites you have identical physical pages located on computers sited in both the United States and in New Zealand. This way you save the cost of international traffic both ways. Of course you have to pay hosting charges in both countries but the costs of storage in the US are extremely low compared to New Zealand and the extra costs are not a burden.

Web page creation and maintenance

Unless you wish to physically create your own Web pages you will need to find a Web authoring company. There are many of these around and you will find that most of the traditional graphics design companies have or are getting into the Web page design business. It pays to shop around to get prices, bearing in mind the design constraints we worked through in Chapter 7. Some hosting companies have a series of flat rate plans. These involve a structure of staged costs. For example \$1,200 might get you a homepage with three additional pages and four graphics, \$3,000 will be a homepage and seven additional pages plus twelve graphics. This approach has the benefit that you know where

you stand from an investment point of view from the outset but you sometimes have to suffer the standard format the company uses - everything looks the same!

The other alternative is to engage a designer on an hourly rate. If you have done the planning and preparation work discussed later in this book, you will be able to present the designer with the structure of the site and the page content. From this the design company will be able to give you a firm quote for the work. This approach allows you to structure the site and its content to meet the objectives you have drawn up rather than have to squeeze your requirements into the standard plan.

The main thing to take into consideration is that cost is not the primary issue here. If the site does not meet your objectives then the cheapest price is a complete waste of money. If your business can't afford the site which does the job then perhaps you should consider shelving the project until you are in a better financial position.

As the site is being developed you can get your developer to put the pages up on to a 'private' site available only to yourself. This private site can, in fact, be accessible by others except that you are the only one who knows the address. Search engines cannot find the site as no other pages link to it so they have no path to follow. As long as you and the developer keep the address to yourselves you are quite secure. The advantage of having the site up live as it is being created is that you can get a feel for how it will work and look in 'real life'. At this stage it is a good idea to access the site from a number of different computers using different browsers and screen monitor sizes. You will be amazed at the difference between monitors - especially the screens on notebook computers, as there are a number of different technologies employed in their design.

Do not underestimate the number of your potential customers who are or will be using notebooks. These computers are becoming ever more popular and are now being used by a growing section of the business community, especially for Internet access. Many business people are trading in their desktop machines for portables as they can take them home in the evenings and weekends and pick up their email from home. From a business point of view this trend is important as it provides access to the Internet to a 'shadow' Internet user population - the partners and children of the business user, many of whom take advantage of the facility to do their own 'surfing the Web' and who may well be potential customers.

In addition to the computers of friends and colleagues, if you have some Internet associates in other countries send them an email with your temporary Web site address and ask them to have a look at the pages and tell you what they see. There have been instances of quite radical differences in page appearance between countries.

As I have already emphasised, maintenance is an extremely important aspect of your Web presence. You can arrange for your Web developer to carry this out for you or you can get them to set up a system whereby you are able to make the changes yourself, perhaps allocating the task to one of your technical staff, and update the Web site using FTP. FTP is not a complex procedure and can be carried out using any computer connected to the Internet.

Selecting your Web designer

How do you decide which company to go to for your Web site development? As we discussed above, cost and the type of approach the designers take can be one issue. As well as this you will need to feel comfortable that your designer understands your needs and is able to translate these into the site that encourages people to purchase your goods and services – after all, that's really what this whole thing is all about.

Before making a decision about the actual designer you might like to consider using the services of a consultant to create your Internet business strategy (see Chapter 6). The advantage of this approach, apart from removing the burden of the development process from you, is that your consultant will be able to take a radically different view of your organisation – one that looks at you from the outside (which is where your customers are coming from!). Everyone works within paradigms they have created around them – their view of the world – and these paradigms often prevent them from seeing some fairly obvious things about their businesses and how these can be improved. I often describe paradigms as incorporating an impregnable 'plastic casing' which surrounds all of us. Our casing has an input aperture on the front through which comes information about the world around us. Before being accepted this information is compared to our personal model of the world. That which almost fits is bent into shape and accepted in its 'modified' form. That which is radically different from our model is rejected outright and exits by the 'exhaust' chute. In other words, we will only believe what our model tells us is true. All of our models are

flawed! The best way to get rid of that plastic case is to have someone on the outside with an ice pick breaking it away from us. A consultant can do the job for you.

Having said that, you still need to be happy that the person doing your Web site (and your consultant for that matter) know what they are doing and can achieve the result you desire. The easiest way to do this is to visit some of the sites they have already worked on. Do this as a customer. How did you feel about the site when you visited? Was it clear what the business was trying to tell you? Did you have trouble, as a potential customer, finding the information you needed to make a purchase decision? Did you have to wade through a whole bunch of technical stuff before you got to the part you wanted? (In this case take the point of view that you are an experienced user of the product or service and just want to re-order.) How did you find navigation through the site? Did you get lost? Were you led to pages which weren't what you expected?

Look critically at the page design itself. Was it full of unnecessary graphics? Did it take too long to download? How did the general arrangement, the graphics and the colours make you feel about the company? Is that how you think the company would want you to feel? Have they used colours which clash? Watch for colours such as reds and greens together – a greater proportion of the population than you might think have some degree of colour blindness.

Overall, how did you feel as a potential customer of the company? Would you buy?

You may need to spend some time looking through Web sites. In fact, apart from the ones created by the companies you are considering employing, you should spend time just looking around generally. See what appeals to you as a customer of each of those sites (don't ask yourself, 'Would this look good on my site?'). When you have narrowed down the field, go and talk to the companies which have the Web sites you liked. Ask them how they felt about their relationship with their designer and whether they feel that they received value for money.

After all that you should be ready to decide!

CHAPTER 18

Domain Names – What's All the Fuss About?

THIS CHAPTER IS ALL about addressing systems. As with any system for delivering messages the Internet relies on an addressing system to route transactions from person to person and site to site around the world. In fact there are actually two addressing systems in operation, in a way very similar to the telephone book.

The phone book contains an alphabetic address – the physical location of the telephone in question – and a numeric address – the telephone number. A relationship exists between the two numbers in that the alphabetic address describes the physical location of the telephone which carries the numeric number.

Because the alphabetic addresses are able to be configured to carry the name of a business organisation there is great interest in obtaining a domain name which customers will recognise as yours.

The registering of a domain name brings with it a number of very important responsibilities and the holder of a name should understand those responsibilities or they will find themselves in breach of the rules by which domain names must be managed, possibly resulting in loss of the name or even in a litigious situation.

Internet addressing structures

The numeric addresses used by the Internet are known as IP addresses and comprise four sets of up to three digit numbers connected by periods. For example 192.33.33.22 is a valid IP address. IP addresses are structured with the numbers on the left referencing the largest network. As you move to the right the numbers point to smaller and smaller networks until the rightmost number refers to an individual computer.

In general you can forget about IP addresses. They are rarely used by the average person unless they are operating a server attached to the Net.

The alphabetic addresses consist of two sets of alphanumeric numbers separated by the '@' character. They operate in the opposite manner to IP addresses in that the largest part of the address is at the right-hand end and the smallest, the individual holder's name, is on the very left.

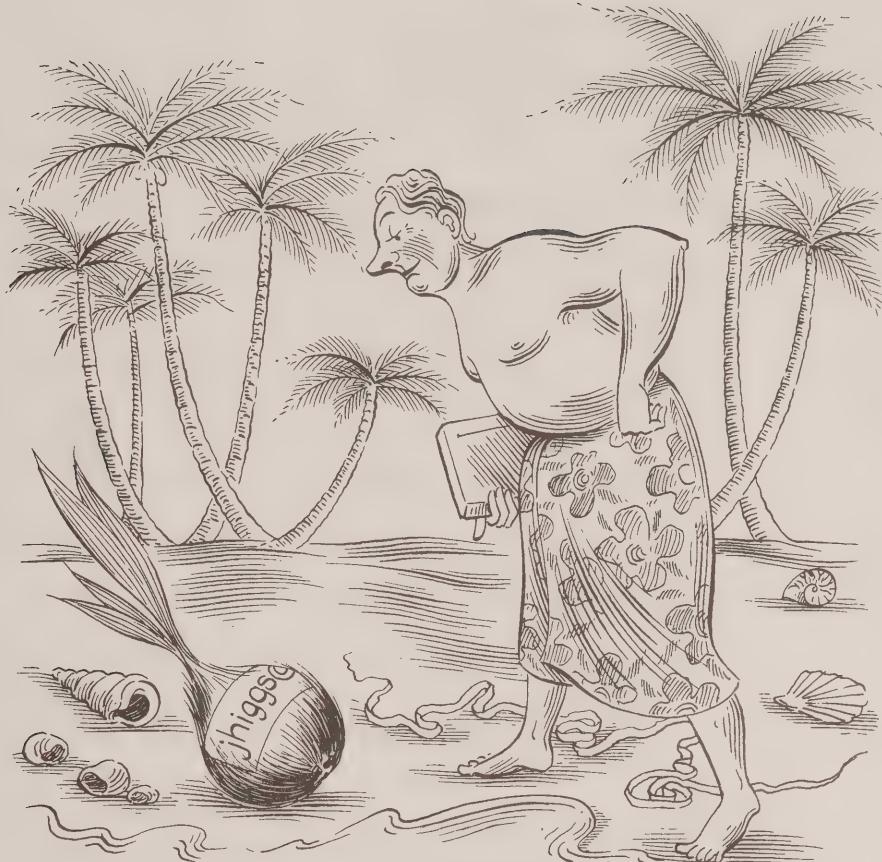
A typical alphabetic address is `jhiggins@netedge.co.nz`.

The leftmost part of the address identifies the individual user and can be put together however you please. Conventions are usually first initial plus surname (`jhiggins`) or first name plus surname initial (`jimh`). Some organisations use periods between names (`jim.higgins` or `j.higgins`), others just use initials (`jah`). It's really up to you; you can have anything you like as long as it is unique within your domain name. Most businesses adopt one or other of the above conventions and stick to it. This approach is useful when customers are trying to guess a staff member's email address. If you know the convention and their name you can usually get the address right.

Domains

To the right of the @ lie the 'domains'. These work from right to left, with the rightmost, the 'first level' domain being the country code. Country codes are two digit codes which are generally fairly recognisable, eg `nz` New Zealand, `au` Australia, `gb` Great Britain etc. In actual fact there are three digit country codes built into the Internet system but it has not yet become necessary to use them. The last characters of an address are therefore always the country code except in the case of the United States. While the `us` domain does exist it is never used. A typical US domain might look like `@ibm.com`.

This brings us to the second level domain, which might be described as the organisation type domain as it classifies the users in that domain. There is no standard for second level domains and it is up to the manager of that domain (more on management later) to set the available domains. In New Zealand we tend to roughly follow the British 'standards' and I have set out below the current New Zealand second level domains, their US equivalents and the types of organisations you might expect to find in them. This latter doesn't always work out as occasionally an organisation is in a domain that appears not suitable. Sometimes it is a matter of choice – for example many Maori organisations have chosen not to use the `iwi` domain although it might seem appropriate.



NZ domain	US domains	Organisation type
.co.nz	.com	Businesses
.gen.nz		Individuals and other organisations not otherwise covered
.org.nz		Non-profit organisations, associations, etc
.mil.nz	.mil	Military
.govt.nz	.gov	Governmental organisations (local and central)
.ac.nz	.edu	Tertiary educational institutions
.school.nz		Primary and secondary schools
.cri.nz		Crown research institutes
.iwi.nz		Maori organisations
.net.nz		NZ-wide Internet-related services

You can have anything you like as long as it is unique within your domain name.

Domain management

The number and type of second level domains is entirely up to the managers of the domain level and the current domain name assignment structure is as follows:

First level – Created by Interest Assigned Numbers Authority (IANA) and assigned to various organisations within each country to manage, within a set of published responsibilities. Management of the nz domain has currently been assigned to ISOCNZ.

Second level – Domains within the second level are created by ISOCNZ and the management of names within those domains are assigned, on request, to applicants. Such management assignment carries with it responsibility to manage the domain within the rules laid down by IANA.

Third level – Third level domains are the names assigned by ISOCNZ to individual applicants, companies, organisations, etc. These individuals and organisations are bound to manage their domains in accordance with the rules laid down by IANA as well as the additional rules imposed by the manager of the second level domains (ISOCNZ). Third level domain managers can assign fourth level names to other persons or organisations.

Fourth level – Management of fourth level domains can be assigned by third level managers to individuals and organisations. These individuals and organisations are bound to manage their domains in accordance with the rules laid down by IANA as well as the additional rules imposed by the manager of the second level domains (ISOCNZ) and the additional rules laid down by the manager of the third level domains.

The above sounds incredibly complex and for this reason the nature of domain names is, in the main, misunderstood. It is important for a business to fully understand the nature of domain assignment and responsibilities as there are a number of businesses around who are effectively selling domain names and often misrepresenting just exactly what it is that they are selling.

Firstly, it should be understood that name assignment can be revoked by the manager of the domain within which you have your name registered, if you do not follow the rules. *You do not, therefore, have a right to your domain name for life!* The loss of its domain can be a serious thing for a business as it will cause much loss of face in the business

world, to say nothing of the actual cost of reprinting stationery and the inability of customers who have your old address to contact you.

Domain name responsibilities

Responsibilities of domain name managers are cumulative. For example, although IANA doesn't assign third level domains, the managers of those domains must keep IANA's rules as any breach impacts upwards and would put the second level managers automatically in breach.

The responsibilities currently imposed by IANA and published in Request for Comment (RFC) 1591 are as follows:

IANA

The major concern in selecting a designated manager for a domain is that it be able to carry out the necessary responsibilities, and have the ability to do an equitable, just, honest and competent job.

1. The key requirement is that for each domain there be a designated manager for supervising that domain's name space. In the case of top-level domains that are country codes this means that there is a manager that supervises the domain names and operates the domain name system in that country.

The manager must, of course, be on the Internet. There must be IP connectivity to the nameservers and email connectivity to the management and staff of the manager.

There must be an administrative contact and a technical contact for each domain. For top-level domains that are country codes at least the administrative contact must reside in the country involved.

2. These designated authorities are trustees for the delegated domain, and have a duty to serve the community.

The designated manager is the trustee of the top-level domain for both the nation, in the case of a country code, and the global Internet community.

3. The designated manager must be equitable to all groups in the domain that request domain names.

This means that the same rules are applied to all requests, all requests must be processed in a non-discriminatory fashion, and academic and commercial (and other) users are treated on an equal basis. No bias shall be shown regarding requests that may come from customers of some other business related to the manager -

for example, no preferential service for customers of a particular data network provider. There can be no requirement that a particular mail system (or other application) protocol, or product, be used.

There are no requirements on subdomains of top-level domains beyond the requirements on higher-level domains themselves. That is, the requirements are applied recursively. In particular, all subdomains shall be allowed to operate their own domain name servers, providing in them whatever information the subdomain manager sees fit (as long as it is true and correct).

4. Significantly interested parties in the domain should agree that the designated manager is the appropriate party.

The IANA tries to have any contending parties reach agreement among themselves, and generally takes no action to change things unless all the contending parties agree; only in cases where the designated manager has substantially misbehaved would the IANA step in.

However, it is also appropriate for interested parties to have some voice in selecting the designated manager.

There are two cases where the IANA and the central Internet Registry (IR) may establish a new top-level domain and delegate only a portion of it:

- there are contending parties that cannot agree, or
- the applying party may not be able to represent or serve the whole country. The latter case sometimes arises when a party outside a country is trying to be helpful in getting networking started in a country – this is sometimes called a ‘proxy’ Domain Name System (DNS) service.

The Internet DNS Names Review Board (IDNB), a committee established by the IANA, will act as a review panel for cases in which the parties can not reach agreement among themselves. The IDNB’s decisions will be binding.

5. The designated manager must do a satisfactory job of operating the DNS service for the domain.

That is, the actual management of the assigning of domain names, delegating subdomains and operating nameservers must be done with technical competence. This includes keeping the central IR (in the case of top-level domains) or other higher-level domain managers advised of the status of the domain, responding

to requests in a timely manner, and operating the database with accuracy, robustness and resilience.

There must be a primary and a secondary nameserver that have IP connectivity to the Internet and can be easily checked for operational status and database accuracy by the IR and the IANA.

In cases when there are persistent problems with the proper operation of a domain, the delegation may be revoked, and possibly delegated to another designated manager.

6. For any transfer of the designated manager trusteeship from one organisation to another, the higher-level domain manager (the IANA in the case of top-level domains) must receive communications from both the old organisation and the new organisation that assure the IANA that the transfer is mutually agreed, and that the new organisation understands its responsibilities.

It is also very helpful for the IANA to receive communications from other parties that may be concerned or affected by the transfer.

7. Rights to names:

- Names and trademarks: In case of a dispute between domain name registrants as to the rights to a particular name, the registration authority shall have no role or responsibility other than to provide the contact information to both parties.

The registration of a domain name does not have any trademark status. It is up to the requestor to be sure he is not violating anyone else's trademark.

- Country codes: The IANA is not in the business of deciding what is and what is not a country.

ISOCNZ

ISOCNZ requires domain name holders to abide by its policies for third level managers. These can be found at <http://isocnz.org.nz> and those pages should be read by anyone wanting to register a third level domain name. At the time of writing the policies were as follows.

In instances where a second level domain applies to a well-defined set of organisations, and those organisations are able to provide ISOCNZ with:

1. an acceptable policy for allocating names within the domain;
2. a group or individual with management responsibility for the proper implementation of said policy; and,

3. reliable contact information for that group or individual, the Society may delegate responsibility for said second level domain to the designated group.

From time to time the Society will review the delegation and retains the right to revoke the delegation if the criteria above are not maintained.

Third level domain names

This policy applies to all requests irrespective of the domain in which the name is requested.

The allocation of a name in a requested second level domain will be expected to be consistent with the definition as noted above.

The name must conform to the relevant RFCs, in particular it must consist of alpha-numeric characters and the ‘.’.

The listing service of names within any domain in the .nz delegated name space is undertaken on a ‘first come – first served’ basis.

ISOCNZ does not trade in, or license in any way any entity (including the entity requesting the listing) to trade in the requested name.

A listing is uniquely identified by the domain name listed. All other information associated with a listing will be changed upon receipt of instructions authorised by the holder.

ISOCNZ will accept instructions to change the name or identity of the holder of a listed domain name if, and only if, a written instruction is provided to ISOCNZ’s designated authority. The instruction must:

1. be duly authorised by the current holder;
2. identify the new holder, with details of address and other particulars necessary to allocate the name to that holder;
3. be acknowledged by the new holder, which must agree to the conditions on which the domain name is allocated; and,
4. release ISOCNZ from any further obligation to the first holder after the allocation has been completed.

ISOCNZ may require evidence of the authority of any representative of a domain name holder.

Domain names may be removed from the registry’s records by ISOCNZ’s designated authority upon receipt of written advice from the current holder or an authorised representative, implicating that the list entry should be removed.

No adjudication is made by ISOCNZ and its agents as to whether the applicant has a legitimate right to a name. The applicant, in lodging

the request for a name, informs the registry that they are entitled to use the name as requested.

Acceptance of the listing entry by ISOCNZ and its agents confers no rights to the applicant regarding the legitimacy or otherwise of the association of the name with the applicant, nor does it confer to the applicant any other rights associated with ownership of the name, or any rights to its use.

ISOCNZ will refuse to register a name if it considers that it may be offensive.

In the case of conflicting name requests between an applicant and an existing listing held by the registry, it is left to the parties concerned (applicant and listed entity) to resolve such matters, and report to the registry if the resolution includes a change of registration details.

ISOCNZ retains the right to reserve names for its own future use. Names so reserved will be publicly listed by ISOCNZ. Reserved names may be allocated from time to time by ISOCNZ for such purposes and with such restrictions as it may decide.

All registration information will be considered as information within the public domain, and will be accessible using the Internet as the publication vehicle. No provision is made concerning acceptance of information under any imposed condition of confidentiality or non-disclosure.

Registration service

In common with Internet name registries in North America and Europe, registration and delegation is a single-stage process designed to minimise registration costs. This means that registration cannot proceed until two or more properly configured DNS name servers for the domain name requested are running.

The registration service cannot undertake the work of setting up DNS servers. Please contact your ISP or an independent consultant for assistance with these tasks. If you want to do this yourself, the following publications will provide useful advice:

- *DNS and Bind*, Paul Albitz & Cricket Liu, O'Reilly & Associates, ISBN 1-56592-010-4
- *TCP/IP Network Administration*, Craig Hunt, O'Reilly & Associates, ISBN 0-937175-82-X

Third level domain managers

As I mentioned above there are a number of organisations currently offering domain names within the fourth level. For example, if I decided to do this within my domain of @netedge.co.nz I might allow someone to use @someone.netedge.co.nz. In this case 'someone' would be the assigned manager of the @someone domain and would therefore have to abide by the rules laid out by the managers of the first and second level domains. In addition, they would have to abide by any additional rules that I might impose – probably that they pay me something like \$50 per year for the privilege.

Ownership

There have been whole libraries written on the vexed question of domain name ownership. While I don't expect that this book will finally put the question to rest, the following is a reasonable description of the nature of a domain name, how it is created, how it is assigned and its tenuous hold on life.



We will take the case of a third level name which a business – Bestcompany Ltd – wants to register in the .co.nz domain.

The first stage in the domain name creation process is by someone 'thinking it up'. So our business has decided that it would like the name @bestcompany.co.nz and, after checking that it is not already registered, asks ISOONZ's registry company New Zealand Internet Registry Ltd (NZIRL) to register the name for them. In the course of doing this Bestcompany Ltd complies with all of the requirements laid down (above) and agrees to abide by the rules for as long as the name is delegated to them. NZIRL duly carries out the request by 'listing' the name.

Listing is the process by which the name is entered onto the various servers which handle Internet traffic routeing. Note that until the name is 'listed' it does not exist as a domain name at all. Once the name is listed, Bestcompany Ltd become the manager of the third level domain @bestcompany.co.nz and are able to assign fourth level domains within @bestcompany, for example @ceramics.bestcompany.co.nz should they wish. If Bestcompany Ltd do assign such fourth level names they will be

responsible to ensure that the managers of those domains obey all of the rules and carry out their delegated responsibilities.

Clearly a domain manager at any level is able to remove from the list any name within his/her domain. This will mean that all of the domain names under the removed name will cease to work (effectively cease to 'exist'). Such an action can only be taken for a breach of the rules and responsibilities, otherwise the 'unlister' is itself in breach. For example if Bestcompany Ltd goes bankrupt, it will no longer be carrying out the management responsibilities for the third level domain @bestbusiness, resulting in that name being removed from the list. The holder of @ceramics.bestbusiness.co.nz would then find that their domain no longer worked.

From the above we can see that no holder of any domain name at any level can be the 'owner' of it, nor can anyone guarantee that they may hold that name 'for life' – which is a service some organisations are intimating they can provide. In general, a domain name's hold on 'life' becomes more tenuous the higher the domain level number. To manage this risk a business should ensure that they make themselves aware of the business stability of the organisation with whom they are registering their name.

Are domain names useful for my business?

Having dealt with the matter of 'ownership' of domain names, the question is, are the names a useful adjunct to business? There is much debate raging about this question. The original non-commercial users of the Net point out, quite rightly, that the domain name system was never meant or designed to be a 'finding' tool, that is, provide a memorable name that one might key in on the offchance that it will find the organisation one is looking for. They believe therefore that a domain name has little inherent value, it is just a unique identifier. The marketplace, on the other hand, thinks of it differently. At the beginning of 1997, US domain registrations were hitting 85,000 per month. Even in New Zealand the level was around 600 per month rising to 800 by mid 1997. Clearly people do see a value in registering their own domain names. It is probably fair to say that although your domain name will be part of your Web page eg <http://www.netedge.co.nz>, a name has limited

value in locating a Web page as most people use a search engine to quickly find the page they want. There is value in the email addresses, however. These you will print on business cards, letterheads, etc and your name will be in front of people and keyed in by people wishing to email you.

The big question, of course, is will there be enough names to go around? The perceived 'shortage' of available names has lead to some 'entrepreneurs' registering names of large and well known companies and then negotiating with those companies to 'sell' the name back to them. This has led in many cases to litigation when those companies attempt to have the names allocated to them by the courts. This approach has proved successful in New Zealand where the Domain Name Company was taken to court by Cadburys and Sanyo. The interesting outcome was that the judge in the case, rather than bringing down a judgment, ordered a temporary injunction and suggested to the Domain Name Company that they should hand over the names and avoid further litigation and considerable expense. This the defendant acceded to. A subsequent case brought by the same applicants against the Domain Name Company was settled out of court with the acceptance by the defendant of a permanent injunction – still leaving the industry without a usable legal precedent. ISOCNZ, who had also been threatened with inclusion in the original action, avoided involvement by pointing out that they were merely a listing agency, exactly the same as the Registrar of Companies, and therefore were not encouraging or allowing the defendant to trade under the name. ISOCNZ did however give an undertaking that they would abide by any instruction the court issued on the matter and duly changed the registration of the names in question.

The above case was not particularly satisfactory from a legal precedent point of view, as no defended judgment was made. It did signal, however, the general mood of the courts in cases of this nature and this has no doubt resulted in a dampening of enthusiasm for trading in domain names.

In the US, domain registrations are carried out by a private sector company and are accompanied by a two-year 'licence' fee of US\$100 (\$50 per year thereafter). The registrant does, however, have about three months to pay the fee before the name is removed from the list. This 'gap' is encouraging 'entrepreneurs' to register, in some cases, thousands of names of operating companies which they then have three months to 'sell' to the (rightful?) owners before losing them. This is

causing major problems for the registration company as only 51% of registrations are being paid for and a huge amount of work is being done in listing then unlisting the names.

What can you do if your name has been registered by one of these people who then wants to sell it to you? You could pay them of course - if you think that the amount in question is small enough to not warrant legal action. Alternatively you could get together with some other businesses in the same boat and take the name holder to court, with a very high chance of a successful action. In most cases the threat of court action and associated costs will be enough to cause the holder to relinquish the name. The simplest and most economical form of action is, however, to register another name - similar to the one under dispute - thus removing all value from that original name. You will probably be able to pick it up later when it is relinquished.

CHAPTER 19

Intranets – the New Revolution

THE USE OF INFORMATION technology in business has been with us for a very short time. It is probably only about 30 years ago that commercially viable business computers became readily available. Since that time the 'science' of business computer applications development has been working through a fairly well structured evolution and many of these evolutionary stages can, in retrospect, be clearly seen. We have finally moved past the stage of developing one-off systems for standard applications in the financial area - the general ledgers, payrolls, debtors systems and the like. Even more specialised applications such as factory management, contract management, hotel systems and a host of other systems provide a wide choice of packages from which one can choose. The day of every business having its own programming team has long gone. We have now moved away from a focus on specific applications to a focus on business information, and this has forced us to look for new ways to do things. The time is right and we have finally developed the tools to build this new generation of systems.

This chapter describes a very new approach to the use of Internet technologies in business. Not very long ago someone somewhere in the world said to themselves, 'These Internet technologies are really great, they make creating a distributed information system so easy to do, wouldn't it be marvellous if we could use them to build some of our business systems?' Why not? The rest is history.

What is an Intranet

An Intranet is an Internet that runs only within the walls of your own business for your own staff.

The concept of building a 'private' Internet just for your own business has spread throughout the world even faster than the Internet itself has been growing. Undoubtedly the impact that this is having on business systems development is truly revolutionary and is probably

greater than any information technology development since the introduction of database techniques back in the early 1980s. It is certainly causing many information technology managers to question their current development strategies and the concept of using purpose-built software or even packages to carry out functions such as document management, collaborative document development (groupware, as it is called) and customer services support systems.

Intranet technologies

Intranets use ordinary Internet technologies. The browsers, server software and search facilities utilise the same software currently used in millions of Internet Web sites around the world and generally freely available, at little or no cost, to be downloaded off the Internet itself. The cost of software is one of the biggest items on an information technology manager's budget and no doubt the thought of being able to use free software had tremendous appeal. But while low-cost software might have been the initial attraction of Intranets, the business benefits to be gained from the use of this new approach make the software savings fade into insignificance.

Most Intranet developers are using standard browsers from Netscape or Microsoft. In some cases they are using the older (and free) versions of Netscape but the advantages of being able to use the newer browser capabilities such as frames is beginning to move some organisations to the (still free) Microsoft Explorer. This book will not attempt to argue the benefits of either product as it matters little which you use. Basic server software is still freely available to be downloaded from CERN or you may wish to take advantage of some of the newer features of the commercially available servers and actually pay money for your server software.

You will need to provide your users with some means of rapidly accessing the information and most sites provide a search engine – along the lines of those available on the Internet. Some of these, 'Excite' for example, are available to be downloaded at no cost.

Intranet benefits

- Intranets enable an organisation to quickly *respond to demands for information*. Because Intranets are easy and quick to develop, a

Responsive



Inexpensive



High Quality



Consistent



Controllable



business can put new systems in place with much greater speed than with conventional applications development processes.

- Many documentation systems are costly and complex, Intranets are *cheap and simple*.
- Intranets provide *quality information in a consistent form*. Because there is only one copy of the manual – or whatever – then it is always correct. The business manager can be confident that policies and rules are being implemented in a consistent form throughout the organisation, regardless of geographic location, since all staff are accessing a single copy of those business rules.
- Intranets allow you to have total *control over the way information is structured* within your organisation. Most large organisations, and many smaller ones, have little control over how their staff organise the information they need to carry out their tasks and business processes. Intranets allow you to enforce a single structure for business information so that no matter who is accessing a piece of information they are able to understand how it is arranged.
- Intranets are *cost effective*. Because the software used is largely freely available at no cost over the Internet itself and much of the information to be held in the Intranet is already in machine readable form, little capital investment and minimal operational costs are involved in the implementation of an Intranet.
- Intranets provide *consistency of information access and retrieval*. Internet browsers enable a viewer to navigate through the available information in a consistent manner, no matter what type of information it is. The browser ensures that all the information is presented to the user in the same format.
- Intranets *reduce workloads on helpdesk operators*. After problems with computers being unplugged from the wall or the monitor brightness being turned down, some of the most common calls to helpdesks are from staff who have become lost in a system. Because most organisations have a plethora of computer systems to carry out a wide range of tasks, many staff find themselves infrequently using some of these systems. This often results in their becoming tangled in the system, unable to find the information they require. Because of the consistency of the navigation this rarely occurs with an Intranet. Even rarely visited applications seem familiar because they have the same look and feel of those applications regularly used.

Intranet uses

- Intranets allow you to *create corporate memory*. When those long-term, valued employees depart they no longer take with them all that information they have acquired over the years. Intranets enable you to capture that 'in my head' information which otherwise would be lost to the organisation.
- Intranets help you to *understand your business*. Because you have to go into great depth to understand the information needs of your staff, you will learn, in great detail, how your organisation works. As an added bonus you will discover the operational inadequacies which exist in all organisations.
- Intranets *ease staff turnover problems*. When new staff come on to the job the task of teaching them about the business systems is greatly reduced as all the systems are the same to navigate. Once one has been mastered the rest are essentially the same. New staff are also assisted through that period of bewilderment about the business and their lack of knowledge about what the business procedures are by the corporate memory information their predecessors have left in the Intranet. The result is that new staff get up to speed and become productive much faster than they would normally.
- Intranets *save time and money in applications development*. The development of text retrieval applications is greatly simplified by Intranet technologies as the Intranet software looks after the output side of the system almost automatically, greatly reducing the need for complex programming.
- Intranets can be used to *provide information to the public*. If your business has information on its Intranet which it requires to be made freely available to the public, or to be made available to specific individuals, this can be done with appropriate security measures. You can even arrange for access to be made on payment of a fee of some sort if the information has a perceived cash value to your customers.
- Intranets allow you to use *multimedia in your manuals*. Because the Internet browsers are happy to display graphics, pictures and video as well as audio and text there are marvellous opportunities to make those business processes manuals come alive with video clips and animated graphics to explain how various processes work. Normally video is prohibitively heavy on bandwidth when

Corporate
Memory



Business
Audit



Help with
New Staff



Save
Application
Document



Multimedia
Manuals



Training

accessed over the Internet. However, on a multi-megabit local area network, on which most Intranets operate, bandwidth is not such a great problem and it is often possible to have short video clips running at the same time as other data.

- Intranets are perfect to carry *business training applications*. The multimedia capability of Internet browsers allows you to create and deliver sophisticated staff training applications. Because the training modules are carried on the local area network, staff can access them at any time. Provided the appropriate security measures are in place (see Chapter 12) they can even access them from home – or anywhere in the world for that matter.
- *Intranets allow you to get the right information to the right people at the right time!*

What do you do with an Intranet?

Most businesses introducing Intranets use them to store manuals. Business manuals are the bane of most managers' lives. They are highly necessary information resources, generally very costly to create and maintain, and lose their value almost overnight if not kept up to date. Indeed in many cases they can become a major business risk if regular maintenance is not carried out and if staff *do not* update the new maintenance releases. Over the past couple of years I have regularly asked attendees at the many seminars I have given on the subject, how many of them do not have a great pile of manual updates that they have not quite managed to integrate into their business manuals. I rarely get more than 5% of hands up. It is probably fair to say that at least 90% of your staff are using out-of-date information – a situation which poses a major risk for your business. The Intranet provides the opportunity to have one up-to-date copy of the manual which can be easily accessed by all staff.



One large New Zealand organisation with some 70 branches scattered around the country regularly distributes the manual which contains its main (extremely complex and volatile) business rules to those branches using an online update. The update, carried out over a weekend, takes nearly 60 hours to complete. This process is a highly risky business. If something major goes wrong, where are

they going to find another 60 hours? Even when the update appears to go well, the database administrator is still never sure that it has properly updated in all of the branches. The application of out-of-date business rules can have a very serious impact on that organisation. That organisation is in the process of moving the application across to an Intranet. They are assisted by the fact that they have a very extensive private telecommunications network which solves most of the security problems for them.

Intranets are also being used as customer support systems. More and more organisations are beginning to develop the concept of specialised customer support personnel to combat the 'telephone tours' to which many customers seeking information have been subject in the past. Intranet technologies are ideal for this purpose since they allow the easy organisation of information in a three-dimensional structure. If you think about the information you use in your business and the number of ways and reasons why you might access one piece of that information you can see that the development of a system specifically to provide everyone with the access approach that they personally find the most intuitive will probably bankrupt the company. Internet software allows you to achieve that objective at little cost.



One of the best examples of the use of Internet technologies to solve a customer services challenge has to be the Dunedin City Council. Dunedin City, like many others, was faced with a burgeoning demand for better service from its citizens and ratepayers. City councils are complex beasts. Most of them are seven or eight businesses rolled into one. Many of those business facets are radically different from the others and require access to highly skilled human resources. Nevertheless the average ratepayer sees only the City Council and whoever they first get their hands on should be able to answer their question!

Dealing with this problem has resulted, in most local bodies, in highly skilled (and paid) officers spending much of their time answering the

same questions over and over again, resulting in much loss of productivity and a very high cost per unit of questions answered. Dunedin City resolved to solve this problem by the implementation of an Intranet. Firstly, and most importantly, they set some goals and objectives. The primary objective was to have their new customer services division, supported by the Intranet, answer 80% of all questions which came into the organisation (whether by phone, mail or personal attendance).

The next very good thing they decided to do was to carry out proof of concept. This involved putting up a single system to see if it would achieve the 80% hit rate they had set. It did and they proceeded to add other applications at an extremely high implementation rate. Each of the successive systems also met the criteria.

This was not a small achievement. It required extensive planning and analysis of the way the Council did its business. It meant that the builders of the Intranet had to know how the organisation worked in its most intimate detail. Most of all it meant that every member of the staff had to be persuaded that the new system would be of substantial benefit to them personally and it was in their interest to make sure that the system achieved every one of its objectives. Inevitably when faced with the prospect of a computer system taking over responsibility for your job the average person feels threatened and reacts by keeping to themselves the critical information about their work. Dunedin City solved this dilemma by working through with their staff the benefits they would gain from contributing to the system. A key question was: 'Do you really enjoy answering the same questions day in and day out?' and 'Wouldn't you like to be able to spend that time improving your job and working conditions?' Let's face it, these are two questions to which it is very hard to answer 'no!'.

Regardless of the wondrous new technologies employed we must not lose sight of the fact that information systems are about people, not computers, and if you are not able to extract information and support from your staff do not attempt to develop an Intranet - it will be an abysmal failure.

While it has not been generally recognised in the rush to get all those manuals on to the Intranet, Intranets can also be used for the accessing and manipulation of almost any other computer system. The payrolls, general ledgers, creditors and other business systems can all be interfaced to the corporate Intranet. While many versions of database packages currently in use require that interface modules be developed to change the html query coming out of the Intranet into the particular

query language used by the database, virtually all of the major database vendors are now producing 'Internet ready' versions of their products. These new database versions are able to directly accept html queries and respond with html output which goes directly to the Intranet screens. The mere fact that a huge investment in this technology is being made by such organisations is a clear signal that this technology is here to stay.

Where to start

As with any system the place to start is with the vision or mission statement. This should be enunciated and published widely so that you can achieve maximum buy-in from your staff.

Next come the goals and objectives. These should be measurable and the goal Dunedin set for an 80% hit rate on questions is an excellent example. You cannot spend too much time in this planning stage. If you don't get the goals right your Intranet will be a spectacular failure.

Clearly what to put in the Intranet is a key success factor. This will be drawn, in concept, from the goals and objectives but the detail will come from the detailed analysis you will carry out of the way in which staff currently handle queries.

The best approach is to design some relatively simple forms and have staff who interface with clients or public fill them out after dealing with each enquiry. It is important that the forms be simple and quick to complete - otherwise staff will spend a large amount of time creating reasons why they should not fill out the forms at all. This data-gathering exercise should not need to be extended beyond about six to eight weeks at which time you begin the collation and analysis phase.

The forms are collated together in order of enquiry type so that duplicates are removed. At this stage the duplicates are counted so that you can get some statistics on volume - these will be needed when it comes time to design the staff structures for the customer services division (if this is indeed your ultimate goal). Finally you will have a list of enquiries your staff have been handling together with some information on their frequency.

The next step is to gather information on how those queries are answered and this is best done in face-to-face interviews. The reason for this is that often the process of responding to an enquiry is quite complex and may involve access to written material combined with some local knowledge, discussions with colleagues and phone calls to

outside sources. All of this is a lot to write on a form and there is a temptation to just put down some of it. In addition, those who use local knowledge or 'in my head' information quite often don't realise that they are doing it until they are questioned. The material gathered from the interviews will then provide you with a picture of the information that you will need to store in the Intranet and the way in which it needs to be structured so that staff are able to intuitively retrieve it.

Of course the process described above is probably the ultimate in terms of building an all-encompassing Intranet. If your need is merely for a repository for a set of policy and/or Human Resources manuals then all you will need is the source documents and a process by which they can be structured for accurate and rapid retrieval. This leads us to the next process:

Information mapping

A warning: *Intranets make it very easy to do things badly!*

The ease with which information can be loaded into an Intranet can work against the whole process. Unless the information is properly structured, retrieval can be a lengthy and frustrating process, resembling those vertical filing systems for paper records ('I just rummage through till I find it'). Before you know it, you have many megabytes of information (?) sitting in your Intranet, presenting page after page of plain unformatted text to the viewer resulting in cases of terminal Mego (mine eyes glazed over). Searches return impossibly large numbers of 'hits' which are generally difficult, if not impossible to refine.

Although Intranets use the same software and structures as Internets there are some essential differences in their construction which must be taken into account if the project is to be successful.

Firstly, an Internet Web site is designed to be used by people you may not know. Nor will you necessarily know their motivation and need for accessing your information. This constraint greatly affects the way in which the information is presented and the navigational structure built into the site.

On the other hand you have a great deal of information about the needs of the people who are to access your Intranet and these will be 'power users' of the system. Power users need ways of rapidly accessing information without having to be constrained by working through sets of choices, lists, menus, etc. This will mean a radically different design approach with built-in shortcuts and search features.

Secondly, Internets tend to be built from the ground up. When you start, much of the information to be included in the site will be assembled and designed according to the objectives you have created for the site. While you may already have some information in machine readable form, usually only a small proportion of the site will be built using this.

The essential difference with your Intranet will be that you will be incorporating a huge amount of information which is already in machine readable form - those organisational manuals which form the heart of your business. There are a number of simple ways in which these can be simply and quickly converted by your own staff into html format. While this is a good thing from the point of view of being able to quickly get information into the system, more often than not that information is not in a format which lends itself to display on a computer screen.

In general, pages in a manual are laid out with some care so that the information is in a format which the reader is comfortable with. There will be a good proportion of white space, diagrams and pictures to illustrate nearby points, and clear paragraph headings. Most authors try to space out the information so that each page looks balanced. Unfortunately, when these pages are 'poured' into an Intranet the fact that only about one third of an A4 page can be shown on the average Internet browser screen completely destroys the 'balanced' layout. Not only will you only see one third of any page but the third you see is actually a rolling third, as the viewer scrolls down through the information.

In addition, much information contained in the average manual is not in a format which lends itself to rapid and intuitive recall. In order that Intranet information is arranged in the most efficient and effective manner it is worthwhile using information mapping techniques to analyse and reformat the manual.

The future of the Intranet

As the title of this chapter implies, I believe that the development of the Intranet concept is truly revolutionary in terms of its impact on information systems development. In the near future we are likely to see large numbers of standard business applications packages coming out with Intranet versions. The range of applications which businesses will migrate to Intranet will also expand greatly.

Internet browsers will begin to take a development path which will

be driven by the needs of Intranets as much as the Internet. This development will be especially strong in the area of groupware, a facility to help people remote from each other work collaboratively on documents and projects.

Extranets

Once organisations had realised the value of the Intranet approach, they also realised the value of being able to get some of that information to business partners and trusted customers. Security was the primary problem. The concept of the Extranet is that it is a private connection between a business and its partners but using Internet technologies - the same servers and browsers currently used by Internet and Intranets. While it is possible to build Extranets based on the Internet, the security technologies are currently quite complex and expensive. Most organisations wishing to share information with their business partners are turning to the private Extranet concept.

Extranet technologies are not new or magical. Basically they are a marriage of standard Internet software with leading-edge, high-level security systems of various kinds.

In a way the Extranet is contrary to the primary philosophy of the Internet as a free highway to business. In fact the Extranet equivalent in the retail industry would be that department store in Moscow during the Communist regime which allowed only the Communist élite inside to make purchases.

The Intranet/Extranet has an exciting future. Perhaps computer systems will at last become as simple to use as we always thought they should be!

CHAPTER 20

Where To From Here?

NO BUSINESS MANAGER in their right mind would ever invest in a technology without trying to see where it is likely to lead and how the business might use the new developments to grow even further. Foretelling the future is never an easy task and, in this case, is made more difficult by the speed with which the Internet has been growing over the last two or three years. There are some indications, however, of the directions in which many of the present functions are heading and it is mainly these we will look at in this chapter.

Bandwidth

If there is one thing holding up the Internet right now it is the need for more bandwidth. The major barrier to expanding bandwidth availability is the cost of laying the needed fibre and installing the switchgear. Developing a business case for doing this is not an easy task. The costs of providing broadband telecommunications throughout a country are very significant and even with the explosion in the use of the Net the payback is most uncertain. It seems highly unlikely that the major telecommunication companies will make the investment and it may well be that the only way bandwidth can be expanded will be through the efforts of smaller organisations rolling out fibre in relatively narrow areas for specific purposes such as the delivery of entertainment products. Even this is high risk. Entertainment competes for the discretionary dollar and the availability of this is not always particularly high.

These smaller initiatives will, however, continue to grow, moving outwards to eventually 'hold hands' at the edges, creating the large, high-speed networks of the future. Because of the way these adjoining cooperative networks will operate there may appear a new breed of network 'brokers' who will create the network facilities you need for some specific purpose.

Costs

Everyone complains about the cost of the Internet. ISPs create complex charging regimes it seems just to prevent the customers from being able to figure out which of them is the best value. Costs have been coming down regularly over the past couple of years and are likely to continue to drop. Charging systems may be used to expand the network bandwidth. It is conceivable that we will see a variety of Internet networks, each offering bandwidth 'by the kilo'. There will be a low bandwidth offering for the home user at an extremely low price - almost free. At the same time business users will be able to pay an appropriate rate which will let them run videoconferencing and transfer large files in very short timeframes. Those wanting very high bandwidth, perhaps for transmitting video clips, will be able to obtain it, again at a higher rate. This gradual expansion, fed by charging systems which are acceptable and seen as good value by the customers, will provide revenue streams which will allow the whole Internet to gradually increase in bandwidth.

Browsers and Web pages

In terms of functionality, browsers are developing at a very fast pace. While it is difficult to predict the specific functionality that we will see over the next five years, the competition between the two major players, Netscape and Microsoft, will ensure that functionality will continue to evolve rapidly.

Browsers will become even easier to use than they are now. They will include Web page development tools which will be simple to manipulate and there will be access to a large amount of clip art for page backgrounds, borders, buttons, etc. Most organisations will be able to and, in fact, will construct their own pages without the need for the Web design companies which currently abound. Most of the non-in-house development will be done by those companies who currently specialise in advertising and public relations, or by a small number of design companies who will specialise in supporting the advertising agencies.

Browsers will incorporate a wide variety of 'helpers' - programmes which will interpret any type of data structure, audio, video, graphics, without the viewer having to hunt around for add-on programmes. Any type of structure will be automatically displayed on the viewer's screen.

Browsers will become fully integrated with other office applications and moving information or graphics from one to another will be a simple drag-and-drop operation. The maintenance of Web sites will become much easier than it is even now.

Extranets

Hopefully, Extranets will disappear as separate entities. They are only with us now because Internet security is currently difficult and bulky at the level of allowing entry to specific individuals into our private business files. As the Internet becomes inherently secure we will find Extranets disappearing as freestanding systems and rather just becoming a security feature on everyone's firewall system.

Intelligent Agents

The breakneck expansion of the Internet and the huge volume of information to which it clearly will provide access has made the development of the Intelligent Agent an inevitability. Intelligent Agents will be software packages which will be our computerised 'alter ego'. They will understand our likes and dislikes, our moods and sensitivities. We will be able to speak to our agent using voice recognition technologies and ask it to carry out tasks specified in very vague and non-specific terminology. Our agent will go out on the Internet and search for the information we need, contacting colleagues and requesting information, meetings, etc., as well as collecting data from a myriad of computers around the world. Intelligent Agents will save us from vanishing under the mountain of information which is already threatening to engulf us. In fact the continued expansion of the Internet will not be possible unless the agents arrive (albeit in embryonic form) by the end of 1998. In fact they are already beginning to appear, although we may not recognise them. If you visit <http://bf.cstar.ac.com/bf/> you will find an agent you can use to search the Internet shopping malls for any music CD you want. You merely type in the name of the CD and the agent searches around the malls, finally coming back to you with the address of the mall in which it is the cheapest.

For our business the Intelligent Agent will be a major resource, taking over most of the information-gathering tasks. It will also follow up contacts, make appointments and sit in on business meetings on our behalf.

Our agent will be tasked with keeping a watch on a whole range of

news and current events in which we are interested. If some shares we have been following alter in price it will notify us immediately. If some new legislation is introduced which is in the general area of our business, our agent will analyse the impact on our business future and advise on action we might take.

Intelligent Agents will be the 'robots' we pictured in the comic books of the fifties - not quite the 'tin people' that were envisioned back then, but infinitely more powerful and flexible!

You can find out more about developments in the area of Intelligent Agents by visiting the following sites: <http://www.bitpix.com/business/main/ialib/> and <http://206.80.20.10/1b-5ts.3.html>. IBM also have some good information at: <http://www.networking.ibm.com/iag/iaghome.html>.

The Internet phone

The economics of being able to make very cheap phone calls on the Internet will drive the technology rapidly into a consumer product. Currently Internet phone, (iphone) is still in the realms of the 'technophile' and needs to become much easier to use if it is to ever be a useful business tool. Clearly, however, it is moving in this direction and already it is possible to find organisations which offer connectivity in some areas for your Internet phone call out through a switch into the public switched telephone network. The current need for both sender and recipient to be running the software 'already on the phone' as it were, will disappear as iphone becomes embedded in the basic browser software and it will be possible to phone anyone on the Internet - provided that they are connected to the Net at the time.

Connectivity is also an issue with iphone. Currently most Internet users connect at regular intervals to pick up mail or to use the Web. This approach makes non-prearranged use of iphone virtually impossible. However, I do see a situation in the future where connectivity might be triggered by the initiator of an iphone call, much as we currently use the telephone. Once this happens we will see iphone become a well-used business tool.

Internet service providers

People talk about the 'shake out' in the ISP business. Certainly there are dozens of service providers springing up every week it seems. Can they all survive? One popular scenario has the large telecommunications

companies taking over all of the ISP business as the smaller companies go to the wall. On the other hand the large ISPs are having real problems providing service as the Internet expands. When your service breaks down your problems are as big and difficult to cope with as the size of your customer base. This factor could well spell doom for the telecommunications companies while the smaller ISPs, able to move more quickly and provide personal service to a smaller customer base, may well prevail in the medium term.

Longer term I see Internet service providers disappearing altogether as browser software becomes more sophisticated and home and business computers connect permanently, 24 hours a day, directly to the Internet backbone. Each computer will host its own mailbox and information pages and the intermediary ISP will not be required.

Computers

The personal computer has been following a steady path since its first appearance in the marketplace. There has been much speculation as to the direction the PC will take but so far it has not been particularly radical. Continuing reduction in chip size with corresponding increases in capacity have allowed the building of extremely powerful computers in very small boxes. The first radical move away from the 'more powerful machines in ever smaller boxes' syndrome has been the development of the network computer - basically a 'cut down' computer which relies on the Internet for much of its power and capability. The real question is, will we continue to build bigger and better PCs or will there be a radical shift to a different type of computing?

If one looks at the drivers for radical technology shifts in the past they have generally come from some 'fringe' development which focussed user requirements in a different direction. A good example was the development of cheap laser printers which enabled the simple and inexpensive printing of barcodes, the effect of which was to kill optical character recognition as a major data entry technology.

The technology which is likely to have a similarly radical impact on the design of PCs is the development of natural voice input in the immediate future and the use of thought control in the longer term. These technologies when combined with holographic display techniques and memory chips which shrink to extremely small sizes are likely to result in the universal communicator - a transparent plate with which we will communicate by voice or thought and which will be

powered by processors we will wear in or on our clothing. As we communicate with people via the universal communicator we will see their moving image on the plate, as they will see ours.

How big will it get?

In 1995 Nicholas Negroponte made a brief visit to New Zealand and during one of his presentations made the prediction that within five years there would be a billion people on the Internet. Considering that at the time of writing this book there are only three years to go and we are still around the 100 million figure for worldwide users, this was a courageous prediction. On the other hand, innovations such as the network computer and the rapidly falling connectivity prices could well bring the worldwide Internet population close to this figure.

Conclusion

Whatever the number, by the time the millennium comes around the Internet will be a considerably larger animal than it is now and it is quite possible that the half-billion mark will be well passed. The important message for business in New Zealand is that at our current rate of growth, all businesses and the major part of the buying public will be on the Internet and actively using it for commerce. Whole new businesses will have grown up around the ability of people to find goods and services and order them over the Internet. The Net will become just a normal way of doing business as has the fax machine, the telephone and the cross-town courier.

APPENDIX I

The Business Plan

EVERY COMMERCIAL OPERATION should not begin to move without a business plan and electronic commerce is no exception. The details presented below are a 'skeleton' which you can take to create your own plan. The particular structure presented may not exactly fit your own business so you should examine carefully how it may be tailored to suit your purposes. The main thing is to *plan*. You must have a good clear idea of the outcomes you are expecting before you commence the project. The plan is meant to be dynamic - so you should be changing it as you go - and to be actively used. Don't finish it and put it on the shelf to gather dust. It is the yardstick for your success!

Business Plan

Internet Business Project

Executive Summary

A standard executive summary outlining the major objectives of the project and the main requirements for success.

Business Description

This will be a reasonably detailed description of the way in which you will be using the Internet to promote your business.

Current Position and Future Outlook

This part of the plan will be a summary of how you see the particular segment of the current marketplace you are targeting and how you see it changing in the future.

Growth Potential

This is where you use your market research to assess the future Internet-based market for your products and services and your estimates of the market share you will be able to capture.

Assets

A list of those tangible and intangible assets you see will be able to help you meet your goals.

Mission

Here you express the vision you have for the project - why are we doing this!

Business Goals

This section states the business goals you have developed for the project (see Chapter 7). I have detailed the first goal which relates to the expected cashflow. Don't forget '*Cashflow is King*'.

Goal 1 To achieve the following level of business per month over the first 12 months of operation:

Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Goal 2

Goal 3

Service Uniqueness and Market Competition

This part of the plan outlines what you think will make your Internet marketing venture stand out from the others. It also looks at the competition you have right now and how soon you expect others to join the fray. It should also state the actions you need to take to make sure that you hold and improve your market share in the face of such competition.

Goals and Objectives

The following are the major goals and objectives of the Internet business strategy. Each goal should be followed by the strategies aimed at ensuring its achievement:

Goal 1

Strategy

Goal 2

Strategy

Description of the Target Market

As a result of the market research you carried out you should have a good idea of the business environment in which you will be operating. This part of the plan should describe this in some detail.

Global Environment

The Internet knows no geographic boundaries. You will be limited only by your ability to physically deliver your products or services to your customers. If you are able to sell internationally here is where you state this.

New Zealand Organisations

Where you are able to target existing customers list them here.

Business Opportunities

Here is where you list those organisations who you recognise as potential customers.

Major Products and Services

A list of the primary services you see the business marketing on the Internet.

Other Services

This section lists those areas you see as having future potential.

Financial

Revenue Streams

The business plan budget describes a number of revenue streams. This section of the business plan expands on these revenue streams.

Pricing and Value Issues

Determination of pricing of your products. This pricing may be the same as your normal structures or it might differ as you may want to encourage customers to use the Net as opposed to normal purchase and delivery methods (eg New Zealand Companies Registrar).

Business Asset Value

Your business will be starting out with a number of tangible assets, detail these here.

Asset

Value

Budgets

This section will contain your budget for the first twelve months together with an explanation of each item. Costs can be taken from Chapter 8.

Market Research and Assumptions

This section contains the results of the market research you carried out in accordance with Chapter 13. Those results are categorised under the following headings:

Market Size

Market Segment

The particular market area on which you intend to focus your initial marketing initiative.

Growth Potential

Your assessment of the degree to which the market is likely to grow over the next five to ten years.

Business Relationships

If you intend to launch your Internet business in conjunction with other businesses, detail these here. Such businesses might be those selling complementary products or perhaps courier companies who will be delivering your products. The Web host you intend to use will also go here.

Customer Profile

Details of the particular customer type on whom you intend to focus your marketing effort.

Competition

Competitive intelligence. Here you should assess any existing or future competitors and how you intend to stay ahead of them.

Market Share

If you are not the 'only game in town' estimate the market share you may be able to capture in the first twelve months and how you will grow that share over the next five years.

Marketing Plan

The Challenge

Detail the particular barriers you see to getting the message about your products out to the marketplace.

The Message

How you will meet the challenges outlined above.

The Target Audience

Some details about the nature of the people you are targeting with your marketing plan. This will include their demographics, buying habits, phobias, drivers, etc.

Marketing Material

The information you will need to put together to attract your target audience to purchase your products.

SWOT Analysis

This segment of the marketing plan contains a fairly standard SWOT analysis of your electronic commerce initiative.

Strengths

1. Environmental

Those things about the target audience and/or the Internet which will provide you with some advantage. For example, a strong customer base who are keen to use electronic trading.

2. Within the company

Particular advantages you have within your organisation which will help the success of the venture. These may be such things as experience in the business, the existence of a comprehensive mailing list, or products which lend themselves to electronic delivery.

Weaknesses

Any disadvantages you perceive in the plan.

Opportunities

Opportunities might be such things as poor service by existing suppliers, new products you know will be readily adopted by your chosen marketplace, possible elimination of the 'grudge purchase' factor.

Threats

Most of the threats to the enterprise will be outlined in Chapter 9. There may, however, be some that are particular to the marketplace or your products and services themselves. Each risk should be followed by your plan to deal with them should they eventuate.

Critical Success Factors

The following are seen as the major critical factors in ensuring the success of your Internet marketing venture:

1. *First Critical Success Factor*

Barriers

List each of the major things that will stop you from ensuring this factor is present.

Counters

Detail your plan to overcome each barrier. Continue until you have outlined all of the critical factors.

Summary

The above will provide you with a straightforward process to make sure that you have considered all of the aspects of your Internet business strategy. You may well find that at the end of this work the risks do not warrant the work and financial benefit which will accrue. I believe that there are few, if any, businesses that cannot achieve a tangible benefit from using the Internet to promote their products and services and therefore, if your business plan does not look favourable it may be because you are putting more reliance upon the technology than is reasonable for your type of business, or that you are not able to offer sufficient advantages over strong competition. In this case you should review either the type of business or the marketplace you intend to enter or the degree to which you are intending to use the Net in your marketing approach.

Internet?

Is your company thinking of connecting to the Internet? Using email? Setting up a Web site?

Beware, says New Zealand Internet expert Jim Higgins in this timely book. The Internet can create a lot of extra business and increase your company profits, sure. But if you don't plan it properly you won't make those extra profits – and the whole exercise could be a waste of time and money.

email?

The Internet, says Higgins, is more a question of business strategies than of technology. You must be able to answer these questions:

Why are you thinking of going on-line?

What is your vision?

Who are your customers?

What are you trying to achieve?

Website?

What business strategies are you putting in place to ensure success?

How will you measure that success?

Net Profit is a complete guide to the Internet and its commercial potential. It is essential reading for every New Zealand business thinking of connecting to the Internet.



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